QMS® 3260/4032 Print System Reference

1800498-001B

EDNord - Istedgade 37A - 9000 Aalborg - telefon 96333500

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1

Introduction

In This Chapter . . .

- “Introduction” on page 1-2
- “About This Manual” on page 1-2

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Introduction

This manual provides detailed instructions and technical information for your QMS 3260/4032 Print System. Use this guide in conjunction with your other printer documentation. This manual can be used for the QMS 3260 Print System or the QMS 4032 Print System. Either printer is referred to as QMS 3260/4032 Print System.

About This Manual

This manual contains printer configuration and reference information. It is divided into the following sections:

1	**Introduction**	Provides an overview of the manual.
2	**Printer Configuration**	Explains the methods of configuring the printer, demonstrates how to use the printer control panel, and provides a detailed discussion of the configuration menu.
3	**Additional Technical Information**	Discusses Crown accounting, ESP and SIO, communication modes, memory, end job mode, IEEE 1284 bidirectional parallel interface modes, PS Protocol, and HP-GL color encoding.
4	**Print Media**	Lists print media sizes, margins, and imageable areas and provides media storage information.
5	**Fonts, Typefaces, and Symbol Sets**	Discusses typefaces, fonts, and other typographic terms, and lists the printer's typefaces.
A	**QMS Customer Support**	Provides world-wide product sales and support telephone numbers and describes how to communicate with QMS through the Internet and Q-FAX.

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B	**Technical Specifications**	Provides technical specifications for the printer and lists available supplies and replacement parts.
C	**Document Option Commands**	Lists printer-supported Document Option Commands (DOCs), provides updated HP PCL 5e terminology, and discusses updated DOCs.
D	**Notices**	Lists manual and legal notices.
E	**Configuration Menu**	Provides a view of the printer's configuration menu.

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Typographic Conventions

The following typographic conventions are used in this manual:

`Mixed-Case Courier`	Text you type, and messages and information displayed on the screen
`Mixed-Case Italic Courier`	Variable text you type; replace the italicized word(s) with information specific to your printer or computer
UPPERCASE COURIER	Information displayed in the printer message window
lowercase bold	PostScript operators and DOS commands
lowercase italic	Variable information in text
UPPERCASE	File and utility names
↵	Press the Enter key (PC) or Return key (Macintosh)
^	Press and hold down the Ctrl key (PC)
	In Adobe Acrobat PDF versions of the manual, click to play a QuickTime video clip of the procedure described in the text.

» **Note:** *Notes contain tips, extra information, or important information that deserves emphasis or reiteration.*

▲ **Caution:** *Cautions present information that you need to know to avoid equipment damage, process failure, or extreme annoyance.*

WARNING! *Warnings indicate the possibility of personal injury if a specific procedure is not performed exactly as described in the manual.*

ACHTUNG! *Bitte halten Sie sich exakt an die im Handbuch beschriebene Vorgehensweise, da sonst Verletzungsgefahr bestehen könnte.*

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2

Printer Configuration

In This Chapter . . .

- “Methods of Configuration” on page 2-2
- “Configuration Menu” on page 2-4
- “Operator Control Menu” on page 2-13
- “Administration Menu” on page 2-32
- “Installation Menu” on page 2-99

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Introduction

This chapter begins by listing and describing the different ways you can configure your printer to meet your special printing needs.

The next section describes how to use the printer control panel to access the configuration menu and how to make configuration changes.

The rest of the chapter provides basic printer configuration information about some of the configuration menu options. The QMS *CrownNet Interface System Setup Guide* (on the QMS *Software Utilities* CD-ROM) contains the CrownNet submenu configuration information for the Ethernet interface. In both guides, menu features are grouped according to task. Each feature is introduced, then a table describes the feature's location in the configuration menu, the available choices for that feature, and the factory default (the value set at the factory).

Methods of Configuration

You have six ways to configure your printer to meet your printing needs:

- Through the printer driver (accessible through the application)
- Through the printer control panel
- Through the CrownAdmin network utility
- Through the CrownView printer webpage
- Through Document Option Commands
- Through Remote Console in a telnet session

Using a Printer Driver from the Application

Using your application is the best way to control your printer since most printing is done on a per-job basis. This helps prevent confusion in network environments and saves you from making changes at the printer control panel.

Applications use printer drivers to send appropriate commands to the printer for requested tasks. If your application doesn't have a QMS 3260/4032 Print System driver, you can install the driver from the QMS *Software Utilities* CD-ROM or download

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the latest driver from our website. You may be able to use other drivers to control the printer but comparable drivers may not allow you to access all of your printer's features, such as 1200 dpi printing, duplexing, or collating.

Using the Control Panel

Your printer is configured at the factory for most typical printing environments, so most users don't have to use the control panel often. However, if you do need to change a printer setting for all print jobs (not just on a per-job basis), you can do so through the control panel. If you're working in a shared printing environment, your system administrator should be the only person to make changes through the printer's control panel.

» **Note:** *The menu navigation button functions appear on the display panel only when the printer is off line.*

Using CrownAdmin Network Utilities

Many of the configuration choices that can be made at the control panel can also be made through CrownAdmin network utilities. CrownAdmin accesses the printer through your network to give you the ability to make configuration changes. The graphical user interface contains buttons that give you direct access to printer features. You can access the printer web page (CrownView) through CrownAdmin or run a Remote Console session. To avoid confusion in a shared printing environment, only the system administrator should make configuration changes. See the QMS CrownAdmin on-line help for information on using Remote Console.

» **Note:** *If a remote console has the printer off line, pressing the Online button will not take effect until the console puts the printer back on line.*

Using CrownView Printer Webpage

QMS CrownView is a printer-based application using the World Wide Web portion of the Internet as a framework for the QMS 3260/4032 Print System. This feature gives you access to printer configuration options normally available through the control panel or CrownAdmin. You can use CrownView to monitor printer consumables, configure the printer to send you email, and access printer status information.

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Using QMS Document Option Commands

QMS Document Option Commands (DOCs) can enable job-specific features your application or page description language can't access. See your QMS *Crown Document Option Commands* manual (in Acrobat PDF format on the QMS *Software Utilities* CD-ROM) for information on DOC. See appendix C, "Document Option Commands," of this manual for a list of the supported DOCs.

Using Remote Console in a Telnet Session

All the configuration settings available from the control panel are available through your printer's Remote Console. You can access Remote Console directly through a telnet session with your printer. See the QMS *CrownNet Interface System Setup Guide* (on the QMS *Software Utilities* CD-ROM) for information.

Configuration Menu

The printer's configuration menu allows you to change the default printer configuration settings. Any changes made to the configuration will reside as new default settings and affect all subsequent print jobs.

The options in the configuration menu are organized under three main menus:

- **Operator Control Menu**

  Use this menu to select document processing options such as copy count, choosing input and output paper bins, chaining input bins, and duplexing (if a duplexing unit is installed). Document processing options are usually specified within individual jobs since each job has its own requirements. However, if there's no way of specifying these options within an application, use the control panel to change options, send the job, and then change the defaults back.

» **Note:** *Defining document processing options for a particular job through the control panel is not recommended in a shared environment. When many systems are using the same printer, there's no way of making sure that no other jobs are sent to the printer while the defaults are changed. The Operator Control menu may be password-protected with an optional security key if the system administrator does not want users changing defaults.*

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- **Administration Menu**

  Use this menu to maintain printer-host communication information, and for selecting and configuring printer emulations, configuring special pages, printing engine calibration, and configuring hard disks (if installed).

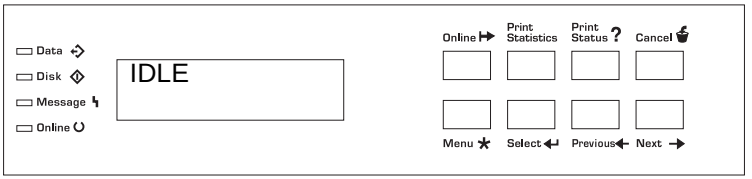
» **Note:** *For information on printer-host communication using the Ethernet interface or any of the Administration/Communications/CrownNet options, see chapter 2, "Printer Configuration," in the QMS CrownNet System Administrator's Guide on the QMS Software Utilities CD-ROM. The Administration menu may be password protected with an optional security key if the system administrator does not want users changing defaults.*

- **Installation Menu**

  Use this menu to establish passwords for the Operator Control and Administration menus. This menu displays only when an optional security key is installed.

Accessing the Configuration Menu

To access the configuration menu, make sure the printer is idle (`IDLE` displays in the message window), then press the Online button to take the printer off line, and finally press the Menu button.



Example

The following table shows how to use control panel buttons to access the printer configuration menu. Press the control panel buttons in the order shown. The printer

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responds by displaying a status message or configuration menu in the message window.

» **Note:** *You may need to press the Next button more than one time to advance through the list of options.*

Press this button	to...	The message window reads...
Online	Take the printer off line and ready the printer for configuration.	`IDLE`
Menu	Access the configuration menu.	`CONFIGURATION OPERATOR CONTROL`

The printer must be off line and idle before you can access the configuration menu.

Selecting Configuration Menu Options

Once you access the configuration menu, you use the control panel buttons to move through the menu. Use the following buttons:

Press this button	to...
Next	Advance to the next option or submenu within a menu.
Previous	Return to the previous option or submenu within a menu.
Select	Select an option or enter a submenu.

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Example

To change the default printer emulation from ESP to PostScript, press the control panel buttons in the order shown in the following table.

» **Note:** *You may need to press the Next button more than once to advance through the list of selections or options.*

Press this button	to...	The message window reads...
Online	Turn off the Online indicator and ready the printer for configuration.	`IDLE`
Menu	Access the configuration menu.	`CONFIGURATION` `OPERATOR CONTROL`
Next	Advance to the Operator Control/ Administration menu.	`CONFIGURATION` `ADMINISTRATION`
Select	Access the Administration menu	`ADMINISTRATION` `COMMUNICATIONS`
Select	Access the Communications menu.	`COMMUNICATIONS` `TIMEOUTS`
Next	Advance to the Communications/Parallel menu.	`COMMUNICATIONS` `PARALLEL`
Select	Access the Parallel menu.	`PARALLEL` `MODE`
Next	Advance to the Parallel/Emulation menu.	`PARALLEL` `EMULATION`
Select	Access the Emulation menu.	`EMULATION` `ESP`
Previous	Advance to the Emulation/PostScript menu.	`EMULATION` `POSTSCRIPT`
Select	Select PostScript as the default emulation.	`POSTSCRIPT` `IS SELECTED`
	After 3 seconds you are returned to the Parallel/Emulation menu.	`PARALLEL` `EMULATION`

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Press this button	to...	The message window reads...
Offline or Menu	Exit from the menu (Offline) or return to the previous menu (Menu). You are prompted to save your change(s).	SAVE CHANGES? NO
Next	Advance to the Save Changes?/Yes option.	SAVE CHANGES? YES
Select	Select YES. The printer finishes printing any print jobs in process, saves your change, and returns to idle.	IDLE

Changing Character Information

Sometimes, rather than selecting an option, you need to enter character information. A character is any letter, digit, or symbol. A field is a group of characters that have meaning. Use the printer control panel to enter character information in the message window during printer configuration. The maximum length of the message window is 16 characters.

Entering character information through the control panel is similar to setting the time and date on a digital watch. You enter one character at a time. The current input character flashes. Use the following buttons to change the current input character:

Press this button	to...
Next	Advance to the next choice for the current input character.
Previous	Return to the previous choice for the current input character.

Once you have changed the current input character, use the following buttons to move the cursor to another input character:

Press this button	to...
Select	Advance the cursor to the next character.
Menu	Return the cursor to the previous character.

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To exit from the character selection process, move the cursor to the last character of the input field (the character farthest to the right) and press the Select button, or move to the first character of the input field (the character farthest to the left) and press the Menu button.

When you exit, the printer verifies character information and confirms it in the message window. If character information is valid, you're returned to the previous menu; if it's invalid, you're returned to the input field. Press the Menu button to cancel any changes to the character information.

If the current character information is longer than the value that you need to enter, replace each extra character with a space. The printer interprets a space at the end of character information as a blank.

Example

To change the number of copies, press the control panel buttons in the order shown in the following table. The printer responds by displaying a status message or configuration menu in the message window. An underline indicates the current input character in the message window.

» **Note:** *You may need to press the Next button more than one time to advance through the list of selections or options.*

Press this button	to...	The message window reads...
Online	Turn off the Online indicator and ready the printer for configuration.	`IDLE`
Menu	Access the configuration menu.	`CONFIGURATION` `OPERATOR CONTROL`
Select	Access the Operator Control/ Copies menu	`OPERATOR CONTROL` `COPIES`
Select	Access the Copies menu.	`COPIES` `001`
Select	Move the cursor to the next digit.	`COPIES` `001`
Next (2 times)	Increase the digit to 2.	`COPIES` `021`

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Press this button	to...	The message window reads...
Select	Move the cursor to the next digit.	COPIES 021
Next **(4 times)**	Increase the current character to 5.	COPIES 025
Select	Select 25 as the default number of copies.	25 IS SELECTED
	After 3 seconds you are returned to the Operator Control/Copies menu.	OPERATOR CONTROL COPIES
Offline or Menu	Exit from the menu (Online) or return to the previous menu (Menu). You are prompted to save your change(s).	SAVE CHANGES? NO
Next	Advance to the Save Changes?/Yes option.	SAVE CHANGES? YES
Select	Select Yes. The printer finishes printing any print jobs in process, saves your change, and returns to idle.	IDLE

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Saving Configuration Changes

Before the printer can accept print jobs with configuration changes, the changes must be saved.

Example

To save your configuration changes, press the control panel buttons in the order shown in the following table. The printer responds by displaying a status message in the message window.

Press this button	to...	The message window reads...
Offline or Menu	Exit from the menu (Online) or return to the previous menu (Menu). You are prompted to save your change(s).	`SAVE CHANGES?` `NO`
Next	Advance to the Save Changes?/Yes option.	`SAVE CHANGES?` `YES`
Select	Select Yes. The printer finishes printing any print jobs in process, saves your change, and returns to idle.	`IDLE`
Offline	Turn the printer on-line and ready the printer to accept and print jobs.	`IDLE`

» **Note:** *The printer may need to be restarted before certain changes to the Administration menu take effect. Some changes restart the printer automatically while others display the message* `REBOOT NOW?` *in the control panel message window. If this message appears, select* `YES` *to restart the printer and have the change(s) take effect immediately, or select* `NO` *to wait until you manually restart the printer for changes to take effect.*

Cancelling Configuration Changes

If you change a configuration option and then decide to cancel that change, you can do so when exiting the configuration menu.

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Example

To cancel your configuration changes, press the control panel buttons in the order shown in the following table. The printer responds by displaying a status message in the message window.

Press this button	to...	The message window reads...
Offline or Menu	Exit from the menu (Offline) or return to the previous menu (Menu) and be prompted to save your change.	`SAVE CHANGES?` `NO`
Select	Select No. The printer finishes printing any print jobs in process, does not save your changes, and returns to idle.	`IDLE`
Offline	Turn the printer on-line and ready the printer to accept print jobs.	`IDLE`

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Operator Control Menu

The Operator Control menu contains the following selections:

Selection	See this section...
Copies	“Copies” on page 2-15
Duplex	“Duplexing” on page 2-15
Output Finishing	“Output Finishing” on page 2-16
Offset Stacking	“Offset Stacking” on page 2-16
Collation	“Collation” on page 2-16
Orientation	“Orientation” on page 2-17
Inputbin	“Choosing an Input Tray” on page 2-17
Outputbin	“Selecting a Paper Outputbin” on page 2-22
Face-Up Order	“Face-Up Order” on page 2-24
Chain Inputbins	“Chaining Paper Inputbins” on page 2-24
Chain Option	“Setting Up Chaining Options” on page 2-25
Multipurpose Sz	“Multipurpose Size” on page 2-27
Accounting	“Accounting” on page 2-28
Consumables	“Consumables” on page 2-31

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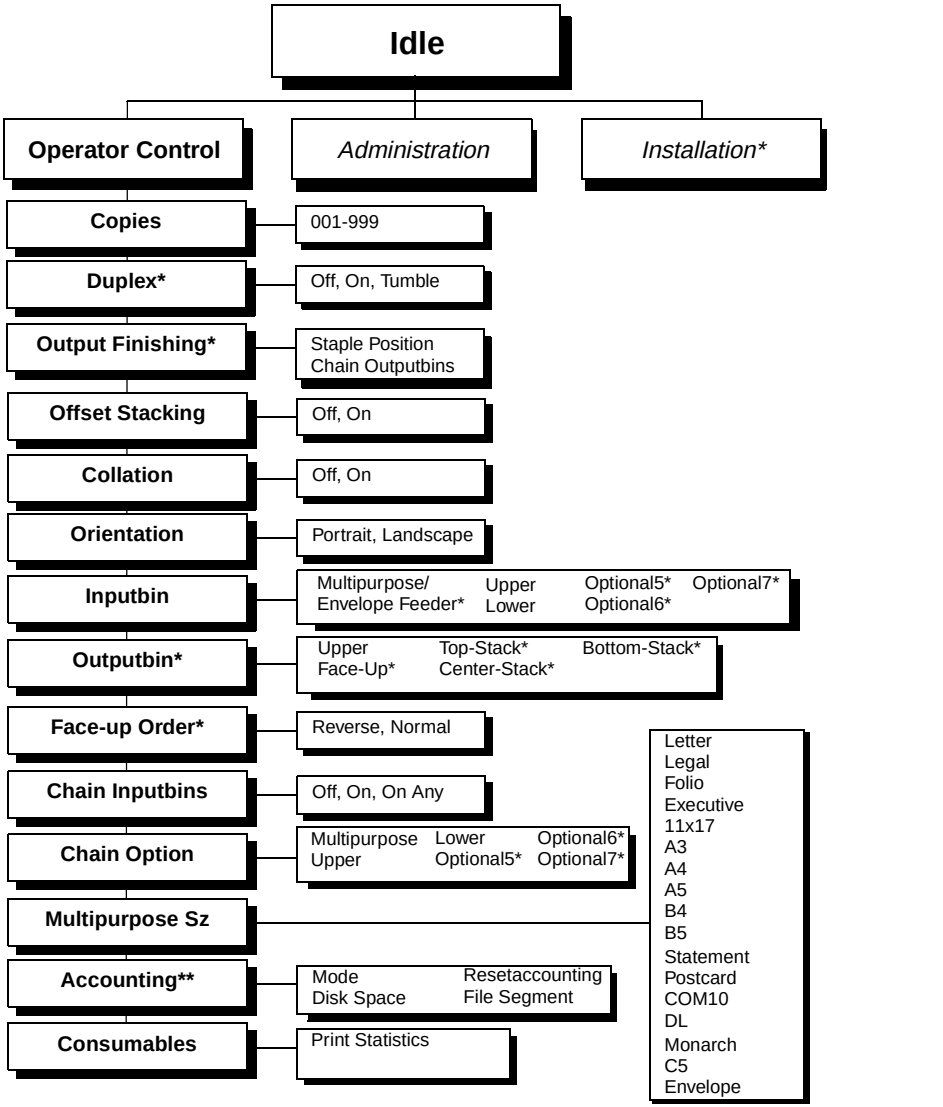
Click on any configuration box to go to that section.



**Optional*
*** Hard Disk Required*

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Copies

While it is preferable to use your application to select the number of copies to print, you can change the default number of copies for all print jobs through the printer control panel.

Menu	Operator Control/Copies
Purpose	Allows you to specify the number of copies to be printed of all subsequent print jobs.
Choices	001-999
Default	001
Notes	It's preferable to select the number of copies to print through your application. When the printer is turned off and then back on again, this option automatically resets to 001.

Duplexing

The Duplex option allows you to print on both sides of the paper.

Menu	Operator Control/ Duplex
Choices	Off—Prints simplex pages. On—Duplexes each page of each job. Tumble—Prints jobs so they can be bound at the top edge (flip-chart style).
Default	Off
Notes	If you want to print individual jobs duplex, leave the printer set to Off and choose duplex through your application.

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Output Finishing

This option requires the high-capacity output stacker (HCOS) installed.

Menu	Operator Control/ Output Finishing/Staple Position
Choices	Off, Front Corner, Back Corner, Center
Default	Off

Menu	Operator Control/Output Finishing/Chain Outputbins
Choices	On—Switch to the next outputbin with the same size and type of paper when the default outputbin is full. Off—Don't chain outputbins
Default	Off

Offset Stacking

This option offsets each job as they are stacked in the upper tray or the optional high-capacity output stacker (HCOS).

Menu	Operator Control/Offset Stacking
Choices	Off, On Off—Jobs stack normally. On—Each job is offset in the output tray.
Default	Off

Collation

Menu	Operator Control/Collation
Purpose	Allows you to enable or disable collation.
Choices	On, Off

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Default	Off
Notes	For more information, refer to chapter 3, “Advanced Printing Features,” of the *Operation* manual.

Orientation

Menu	Operator Control/Orientation
Purpose	Allows you to set the orientation of the printed document.
Choices	Portrait—Vertical orientation Landscape—Horizontal orientation
Default	Portrait
Notes	The orientation of the print media is usually set in your application.

Choosing an Input Tray

Selecting a Media Inputbin

Your printer has the following inputbins:

Multipurpose Tray (1)	Holds approximately 50 sheets of Letter, Legal, Folio, Executive, 11x17, A3, A4, A5, B4, B5, Statement, Postcard, Com10, DL, Monarch, C5, Envelope
Upper Tray (2)	Holds approximately 500 sheets of letter/A4, A5, statement, executive, B5(Kanji), A3/11" x 17" paper.
Lower Tray (3)	Holds approximately 500 sheets of letter/A4, executive, B5(Kanji), A3/11" x 17" paper..
Optional 5 Tray (HCIF)	Holds approximately 500 sheets of letter/A4, executive, B5(Kanji), A3/11" x 17" paper..
Optional 6 Tray (HCIF)	Holds approximately 1000 sheets of letter/A4 or executive
Optional 7 Tray (HCIF)	Holds approximately 1000 sheets of letter/A4 or executive

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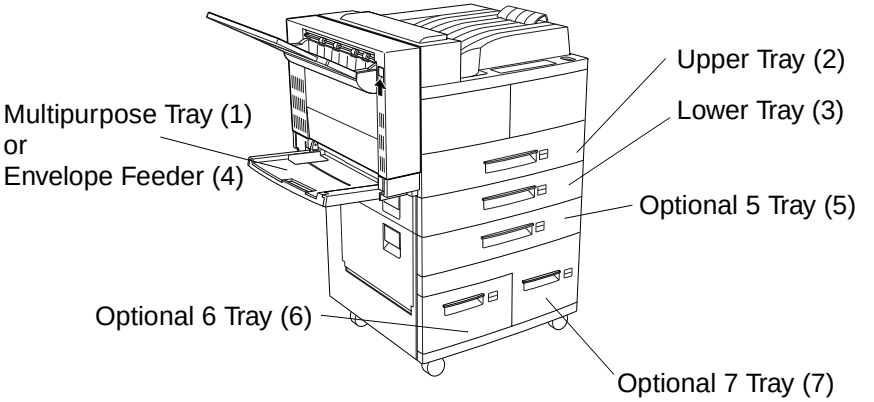
The following illustration shows the locations of these bins.



The input trays support several types and sizes of paper. See chapter 4, “Print Media,” of this manual, for information on the types and weights of paper. The optional large-capacity input feeder expands the printer’s paper capacity from 1000 to 3500 sheets of paper.

The Operator Control/Inputbin menu allows you to select the default tray or tray (inputbin) from which paper is drawn into the printer.

Menu	Operator Control/Inputbin
Purpose	Allows you to select the default tray (inputbin) from which print media is pulled.
Choices	Multipurpose—The multipurpose tray (1). Upper—The standard upper tray (2). Lower—The standard lower tray (3). Envelope Feeder—The optional envelope feeder (4). Optional 5—The top tray of the optional high-capacity input feeder (HCIF). Optional 6—The lower-left tray of the optional HCIF. Optional 7—The lower-right tray optional HCIF.
Default	Upper
Menu	Operator Control/Inputbin

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Naming Media Inputbins

Options in the Administration/Engine menu allow you to give each inputbin a more descriptive name. These names are displayed in the printer message window, where appropriate. You can also use the descriptive names with Document Option Commands. (See the QMS *Crown Document Option Commands* manual on the QMS Software Utilities CD-ROM for complete information on Document Option Commands.)

Inputbin 1

Menu	Administration/Engine/Inputbin 1 Name
Purpose	Allows you to give the standard multipurpose tray a more descriptive name.
Choices	Up to 16 characters
Default	Multipurpose
Note	This name is displayed in the printer message window, where appropriate. You can also use it with QMS Document Option Commands (DOCs).

Inputbin 2

Menu	Administration/Engine/Inputbin 2 Name
Purpose	Allows you to give the standard upper tray a more descriptive name.
Choices	Up to 16 characters
Default	Upper
Note	This name is displayed in the printer message window, where appropriate. You can also use it with QMS Document Option Commands (DOCs).

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Inputbin 3

Menu	Administration/Engine/Inputbin 3 Name
Purpose	Allows you to give the standard lower tray a more descriptive name.
Choices	Up to 16 characters
Default	Lower
Note	This name is displayed in the printer message window, where appropriate. You can also use it with QMS Document Option Commands (DOCs).

Inputbin 4

Menu	Administration/Engine/Inputbin 4 Name
Purpose	Allows you to give the optional envelope feeder a more descriptive name.
Choices	Up to 16 characters
Default	Envelope
Note	Appears only if the optional envelope feeder is installed. This name is displayed in the printer message window, where appropriate. You can also use it with QMS Document Option Commands (DOCs).

Inputbin 5

Menu	Administration/Engine/Inputbin 5 Name
Purpose	Allows you to give the optional universal tray a more descriptive name.
Choices	Up to 16 characters
Default	Optional5
Note	This menu appears only if the optional high-capacity input feeder is installed. This name is displayed in the printer message window, where appropriate. You can also use it with QMS Document Option Commands (DOCs).

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Inputbin 6

Menu	Administration/Engine/Inputbin 6 Name
Purpose	Allows you to give the optional lower-left tray a more descriptive name.
Choices	Up to 16 characters
Default	Optional6
Note	This menu appears only if the optional high-capacity feeder is installed. This name is displayed in the printer message window, where appropriate. You can also use it with QMS Document Option Commands (DOCs).

Inputbin 7

Menu	Administration/Engine/Inputbin 7 Name
Purpose	Allows you to give the optional lower-right tray a more descriptive name.
Choices	Up to 16 characters
Default	Optional7
Note	This menu appears only if the optional high-capacity input feeder is installed. This name is displayed in the printer message window, where appropriate. You can also use it with QMS Document Option Commands (DOCs).

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Paper Output

Selecting a Paper Outputbin

Menu	Operator Control/Outputbin
Choices	Upper Face-Up Top Stack—optional top bin of high-capacity output stacker (HCOS) Center Stack—optional center bin of HCOS Bottom Stack—optional lower bin of HCOS
Default	Upper
Note	The Top-Stack, Center-Stack, and Bottom-Stack options appear only if the high-capacity output stacker is installed

Naming the Paper Outputbin

The Administration/Engine/Outputbin menu is used to name output bins. You can also use this name with DOC commands. (See the QMS *Crown Document Option Commands* manual for information.)

Menu	Administration/Engine/Outputbin 1 Name
Choices	Up to 16 characters
Default	upper

Menu	Administration/Engine/Outputbin 2 Name
Choices	Up to 16 characters
Default	face-up

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Menu	Administration/Engine/Outputbin 3 Name
Choices	Up to 16 characters
Default	top-stack
Note	Available only if the optional high-capacity output stacker is installed.

Menu	Administration/Engine/Outputbin 4 Name
Choices	Up to 16 characters
Default	center-stack
Note	Available only if the optional high-capacity output stacker is installed.

Menu	Administration/Engine/Outputbin 5 Name
Choices	Up to 16 characters
Default	bottom-stack
Note	Available only if the optional high-capacity output stacker is installed.

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Face-Up Order

This option allows you to choose stacking your print job in normal face-down order or reverse order.

Menu	Operator Control/Face-Up Order
Choices	Normal, Reverse Normal—Order of printing is first page of the job printed first. Reverse—Order of printing is last page of the job is printed first.
Default	Normal
Notes	Reverse face-up order is not supported when printing duplex jobs.

Chaining Paper Inputbins

An option in the Operator Control menu allows you to “chain” inputbins (trays) so that when the first inputbin empties, the printer will automatically draw paper from another input bin with either the same or any size and type of paper (dependent on the choice selected).

Menu	Operator Control/Chain Inputbins
Choices	On—Switch to the next inputbin with the same size and type of paper when the default inputbin is empty. Make sure the three trays use the same size paper. Off—Don’t switch inputbins; use only the default inputbin. On Any—Switch to the next inputbin with similar size of paper when the default inputbin is empty.

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Default	On
Notes	Use the Operator Control/Inputbin menu to set the default inputbin. Make sure that the three inputbins use the same size paper. When chaining “on any” and duplexing, the printer will chain to a similar size paper (for example, letter to A4) but not to the large paper sizes—11"x17" and A3. This is because these large sizes are fed through the printer in a different printing order than the smaller sizes. When these restrictions occur on chaining on any, the printer will prompt you to add the default paper size to any tray. The custom tray chaining “on any” for large-format paper will not occur unless there is another custom tray with the same paper size or a standard tray with A3 or 11"x17" paper.

Setting Up Chaining Options

Options in the Operator Control menu allow you to configure whether or not an input-bin will be available for chaining from another inputbin.

Menu	Operator Control/Chain Option/Multipurpose
Choices	On—Allow media to be pulled from the multipurpose tray (1) if necessary. Off—Don’t allow media to be pulled from the multipurpose.
Default	On
Notes	The Operator Control/Chain Option menu must be set to On before the setting in this menu takes effect.

Menu	Operator Control/Chain Option/Upper
Choices	On—Allow media to be pulled from the upper inputbin (2) if necessary. Off—Don’t allow media to be pulled from the upper inputbin (2).
Default	On
Notes	The Operator Control/Chain Option menu must be set to On before the setting in this menu takes effect.

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Menu	Operator Control/Chain Option/Lower
Choices	On—Allow media to be pulled from the lower inputbin (3) if necessary. Off—Don't allow media to be pulled from the lower inputbin (3).
Default	On
Notes	The Operator Control/Chain Option menu must be set to On before the setting in this menu takes effect.

Menu	Operator Control/Chain Option/Optional 5
Choices	On—Allow media to be pulled from the high-capacity input feeder tray 5. Off—Don't allow media to be pulled from the high-capacity input feeder tray 5.
Default	On
Notes	The Operator Control/Chain Option menu must be set to On before the setting in this menu takes effect.

Menu	Operator Control/Chain Option/Optional 6
Choices	On—Allow media to be pulled from the high-capacity input feeder tray 6. Off—Don't allow media to be pulled from the high-capacity input feeder tray 6.
Default	On
Notes	The Operator Control/Chain Option menu must be set to On before the setting in this menu takes effect.

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Menu	Operator Control/Chain Option/Optional 7
Choices	On—Allow media to be pulled from the high-capacity input feeder tray 7. Off—Don't allow media to be pulled from the high-capacity input feeder tray 7.
Default	On
Notes	The Operator Control/Chain Option menu must be set to On before the setting in this menu takes effect.

Multipurpose Size

Menu	Operator Control/Multipurpose Sz
Purpose	To select the media size used in the multipurpose tray
Choices	Letter, Legal, Folio, Executive, 11x17, A3, A4, A5, B4, B5, Statement, Postcard, Com10, DL, Monarch, C5, Envelope
Default	Letter

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Accounting

Setting the Accounting Mode

Menu	Operator Control/Accounting/Mode
Purpose	Enables or disables job accounting.
Choices	Enabled, Disabled
Default	Disabled
Notes	You can also enable accounting via Remote Console. When accounting is disabled, any files containing data remain untouched, but empty files are removed to save disk space.

Allocating Disk Space

Menu	Operator Control/Accounting/Disk Space
Purpose	Allocates disk space for job accounting files.
Choices	50-10240 (KB)
Default	1024 (KB)
Notes	1024 KB = 1 MB 10240 KB = 10 MB The amount of space required for each job can vary between 200 and 250 bytes, so each 1 MB in the job accounting file stores information on 4,000 to 5,000 jobs. If the selected value is greater than the current value, the file size is increased to reserve the extra space. If the value is smaller than the current file size, any empty job accounting files are moved. If only one file is used and it is not empty, it cannot be shrunk.

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Resetting Accounting

Menu	Operator Control/Accounting/Resetaccounting
Purpose	Erases the Accounting files and recreates them using the current file size.
Choices	Yes, No
Default	No
Notes	If this operation is selected when accounting is disabled, the files are removed but not recreated, thus saving disk space. This operation is also available as the **resetaccount** command for the admin user at a remote console. (See the *Remote Console User's Guide* for more information.) When job files are more than 80% full but less than 100% full, the following message displays on the control panel and remote console: *xxxxxxxx* `FILE` *xxx%* `FULL` (*xxx%* is the percentage full, reported as 80%, 85%, 90%, or 95%.) This is an appropriate time to transfer them to your host computer using ftp if it is available to you. Then use the option to reset the accounting files to empty after they have been transferred to the host. When the file is 100% full, the *xxx* `FILE IS FULL` message displays. When accounting is enabled and the job accounting files are 100% full, no further print jobs are accepted by the printer until Resetaccounting is selected or until accounting is disabled. If you disable accounting at this time, no job information is stored. You can retrieve your accounting files while they are full and then do the Resetaccounting operation. However, to avoid delaying jobs being sent to the printer, it is advisable to perform the retrieve/reset operations before the job accounting files fill up.

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Segmenting the Accounting Job File

Menu	Operator Control/Accounting/File Segment
Purpose	Allows you to specify whether accounting information is stored in the printer in a single file or in multiple files.
Choices	Single, Multiple
Default	Multiple
Notes	Job accounting information may be stored in a single file and can be retrieved via FTP on your host or by using Crown Print Auditor (CPA) on the *QMS Software Utilities* CD-ROM. Otherwise, the selected job accounting file should be spread into multiple files. If a single file is used, its size equals the Disk Space value described earlier in this section. The file name will be ACC1.JOB. If multiple files are selected, their combined size equals the File Size value described earlier in this section. Each file will be 1 MB, except the last file, which includes the remaining dedicated space. That is, if you dedicate 10 MB to accounting and select multiple files, the printer creates 10 files of 1 MB each. If you dedicate 5.5 MB to accounting, the printer creates 5 files of 1 MB each and one of 500 KB. The job filenames are ACC1.JOB, ACC2.JOB, and so on.

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Consumables

This option helps you monitor your printer's consumables.

Printing a Consumables Statistics Page

Menu	Operator Control/Consumables/Print Statistics
Purpose	Prints a consumables statistics page
Choices	No, Yes
Default	No
Notes	The consumables statistics page allows you to check the amount of usage for printer consumables and other printer statistics, such as the number of sheets, faces, planes printed and average coverage toner. The number of sheets/faces printed statistics differ from the number of sheets printed statistics on the printer's start-up and status pages, which refer to the total number of sheets/faces of media printed during the life of the printer.

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Administration Menu

The Administration menu contains the following submenus:

Selection	See this section...
Communications	“Communications” on page 2-34
Emulations	“Emulations” on page 2-53
Special Pages	“Special Pages” on page 2-69
Startup Options	“Enabling/Disabling the Start-Up Page” on page 2-73
Memory	“Memory” on page 2-75
Engine	“Engine” on page 2-84
Consumables	“Consumables” on page 2-91
Miscellaneous	“Miscellaneous” on page 2-92
Disk Operations	“Disk Operations” on page 2-96

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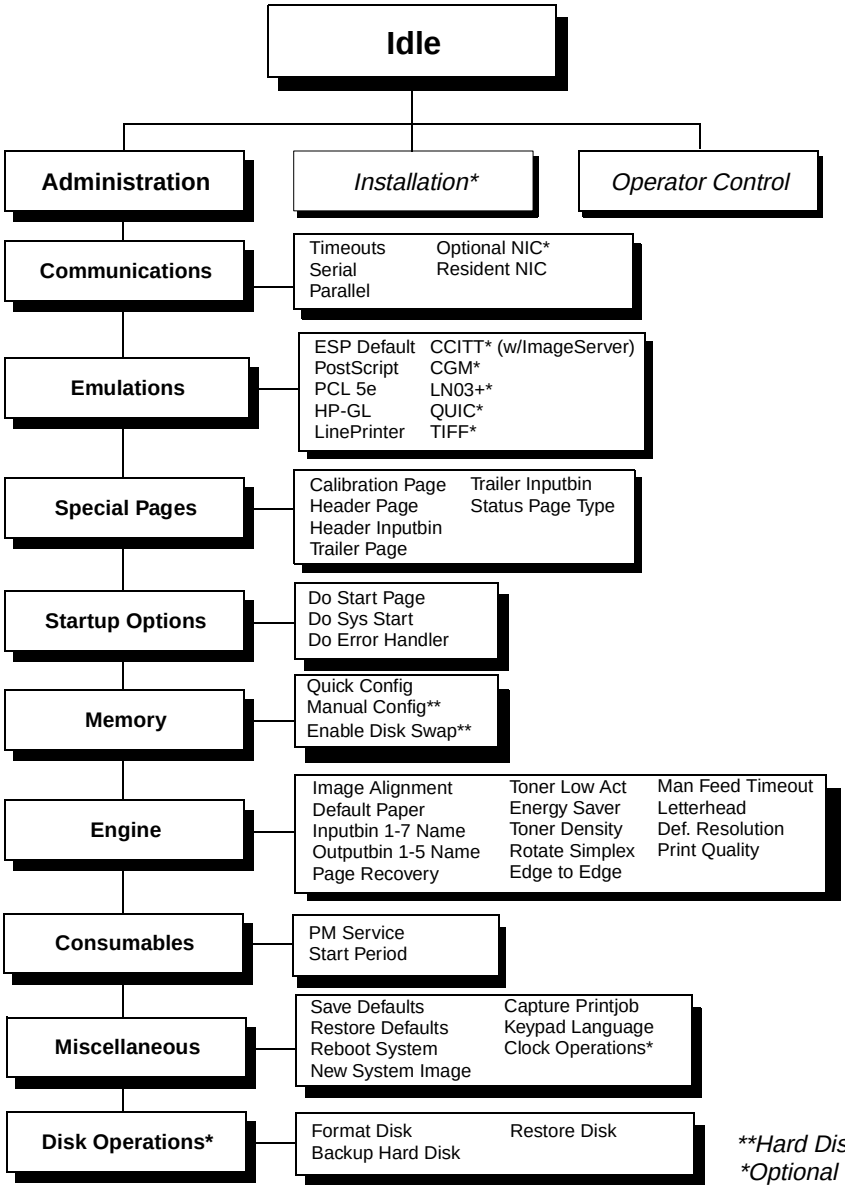
Click on any of the configuration boxes to go to the section



***Hard Disk Required*
**Optional*

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Communications

This menu contains several options that allow you to configure the printers communication parameters to match the host and application parameters.

» **Note:** *This section contains information on the Timeouts, Parallel, and Resident NIC menus. For information on printer-host communication using the Ethernet interface or any options located under the CrownNet submenu (Administration/Communications/Resident NIC/CrownNet), see chapter 2, "Printer Configuration," of the QMS CrownNet System Administrator's Guide. For information on the optional serial and LocalTalk interfaces, see the Options manual.*

Setting Timeouts

The Timeouts options limit the amount of time the printer waits on transmission from the host for various types of data.

Setting a PostScript Emulation Timeout

The PostScript emulation timeout is the maximum number of seconds the PostScript emulation waits for incoming data.

Menu	Administration/Communications/Timeouts/PS Wait Timeout
Choices	00000-99999
Default	00030 (30 sec.)
Notes	A value of 00000 is the same as infinity (no timeout). The job is closed and the next job in the queue begins if all of the following occur: ■ No additional data is received during the specified period of time. ■ The interface didn't time out. ■ An EOD (end-of-document commands) was not seen. When a print job is sent from a Macintosh, the PS Wait timeout is automatically changed to 00300 (5 min.). Large print jobs, such as those generated by graphics or computer-aided design applications, require timeouts of 00300 (5 min.).

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Setting an Emulation Timeout

The emulation timeout is the maximum number of seconds emulations other than PostScript (such as HP-GL, HP PCL5e, and Lineprinter) wait for incoming data.

Menu	Administration/Communications/Timeouts/Emul Timeout
Choices	00000-99999
Default	00005 (5 sec.)
Notes	A value of 00000 is the same as infinity (no timeout).

Setting a Print Job Timeout

The print job timeout is the maximum number of seconds the printer processes a print job before it ends the job.

Menu	Administration/Communications/Timeouts/Job Timeout
Choices	00000-99999
Default	00000 (infinity, no timeout)
Notes	A value of 000 is the same as infinity (no timeout).

Setting an ESP Timeout

The ESP timeout is the maximum number of seconds the printer waits to match an emulation before printing the job in the default emulation.

Menu	Administration/Communications/Timeouts/ESP Timeout
Choices	00000-99999
Default	00003 (3 sec.)
Notes	A value of 00000 is the same as infinity (no timeout).

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Setting Serial Interface Parameters

Mode

Menu	Administration/Communications/Serial/Mode
Purpose	Enables or disables the serial port.
Choices	Interactive—Establish two-way communication between the host and the printer. Noninteractive—Establish one-way communication from the host to the printer. Disabled—Turn off serial communication with the host. The printer stops accepting print jobs over the serial interface.
Default	Interactive
Notes	The printer must be restarted for changes to the Mode menu to take effect. You can either let the printer restart automatically after you save the change and exit the Configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer.

Emulation

Menu	Administration/Communications/Serial/Emulation
Purpose	Sets the serial interface emulation.
Choices	ESP, Hexdump, PostScript, PCL5e, HP-GL, Lineprinter » **Note:** *If installed, these optional emulations may also appear: CALS, CGM, LN03+, QUIC, TIFF.*
Default	ESP

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Minimum Number of Kilobytes for Spooling

Menu	Administration/Communications/Serial/Min K Spool
Purpose	Sets the minimum number of kilobytes of system memory allocated to the serial interface.
Choices	00000-99999 (KB)
Default	00015 (KB)
Notes	This value must be less than K Mem For Spool. A 00000 value does not turn off the spooling buffer for the serial interface. If the value is set to 00000, the printer calculates the Min K Spool automatically at initialization. The printer must be restarted for changes to the Min K Spool menu to take effect. You can either let the printer restart automatically after you save the change and exit the Configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer.

Spooling Timeout

Menu	Administration/Communications/Serial/Spool Timeout
Purpose	Sets the number of seconds the interface waits for data from the host before terminating a spooled print job.
Choices	00000-99999 (sec.)
Default	00030 (sec.)

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End Job Mode

Menu	Administration/Communications/Serial/End Job Mode
Purpose	Enables (and identifies an end-of-job sequence) or disables data stream sensing for the end-of-document (EOD) command.
Choices	None—The printer recognizes only the PostScript ^D command. QMS EOD—The printer recognizes only the QMS %%EndOfDocument command. HP EOD—The printer recognizes only the HP <ESC>%12345X command.
Default	None
Notes	See chapter 3, “Additional Technical Information,” for details on how to implement this feature.

Default Job Priority

Menu	Administration/Communications/Serial/Def Job Prio
Purpose	Allows you to specify which jobs are printed first, according to the interface through which they are received, when jobs are received simultaneously.
Choices	001-100 (highest-lowest priority)
Default	001 (highest priority)
Notes	For example, you can give jobs received via the serial interface priority over jobs received via another interface.

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Baud Rate

Menu	Administration/Communications/Serial/Baud Rate
Purpose	Sets the rate data is transmitted (bits per second) over the serial interface.
Choices	300, 600, 1200, 2400, 4800, 9600, 19200, 38400 (bits/sec.)
Default	9600 (bits/sec.)
Notes	Baud rates of 19200 and 38400 require hardware flow control (Administration/Communications/Serial/Hdwe Flow Ctl menu).

Parity

Menu	Administration/Communications/Serial/Parity
Purpose	Sets the check bit used to identify data transmission errors.
Choices	None, Odd, Even
Default	None
Notes	The printer's parity setting must match that of the host or application. Use the Administration/Communications/Serial/Ignore Parity menu to specify how the printer handles parity errors.

Ignore Parity Errors

Menu	Administration/Communications/Serial/Ignore Parity
Purpose	Specifies how the printer should handle parity errors.
Choices	Off—Ignore parity errors. The printer prints its best interpretation of the character(s) affected by the error. On—Don't ignore parity errors. The printer replaces the character(s) affected by the error with a question mark.
Default	Off
Notes	Use the Administration/Communications/Serial/Parity menu to set parity.

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Receive Software Flow Control

Menu	Administration/Communications/Serial/Rcv Sw Flow Ctl
Purpose	Sets the software communication protocol used by the printer to control communication from the host computer.
Choices	ETX/ACK, Robust XON/XOFF, None, XON/XOFF
Default	XON/XOFF

Transmit Software Flow Control

Menu	Administration/Communications/Serial/Xmit Sw Flow Ctl
Purpose	Sets the software communication protocol used by the host computer to control communication with the printer.
Choices	ETX/ACK, None, XON/XOFF
Default	None

Data Bits

Menu	Administration/Communications/Serial/Data Bits
Purpose	Sets the number of data bits transmitted per character.
Choices	7 Bits, 8 Bits
Default	8 Bits

Stop Bits

Menu	Administration/Communications/Serial/Stop Bits
Purpose	Sets the number of stop bits transmitted per character.
Choices	1 Bit, 2 Bits
Default	1 Bit

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Hardware Flow Control

Menu	Administration/Communications/Serial/Hdwe Flow Ctl	
Purpose	Controls the flow of data between the printer and the host.	
Choices	DSR POL DSR DTR POL DTR RTS CTS	Normal, reverse Off, on Normal, reverse Off, on Off, on Off, on
Defaults	DSR POL DSR DTR POL DTR RTS CTS	Normal Off Normal On Off Off
Notes	If the host uses hardware flow control, set this option to match the type used by the host. However, to download printer system software to flash ROM via the serial port, RTS and CTS must be set to On, and the cable pinouts must be connected as shown in appendix B, Technical Specifications	

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PS Protocol

Menu	Administration/Communications/Serial/PS Protocol
Purpose	Sets the binary communications protocol (BCP) for communicating over a serial interface to a PostScript printer.
Choices	Normal—Enables standard, ASCII (7-bit) hex protocol. Data is sent and received in ASCII format. This mode is recommended if you do not print binary data. It was designed for data in the printable ASCII range. Print jobs can change this setting through PostScript operators. Normal Fixed—Enables standard, ASCII (7-bit) hex protocol. Print jobs cannot change this setting through PostScript operators. Binary—Enables binary communications protocol (BCP). Print jobs can change this setting through PostScript operators. Data in the printable ASCII range also prints. Binary Fixed—Enables binary fixed communications protocol (BCP). Print jobs cannot alter change this setting through PostScript operators. Data in the printable ASCII range also prints.
Default	Normal
Notes	See chapter 3, “Additional Technical Information,” for a full discussion of PS Protocol.

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Setting Parallel Interface Parameters

Use the Administration/Communications/Parallel menu to set the parallel interface values used for printer-host communications.

Mode

The parallel interface supports Centronics parallel communication as well as IEEE 1284 bidirectional parallel communication.

Menu	Administration/Communications/Parallel/Mode
Choices	Interactive—Establish two-way communication between the host and the printer. Noninteractive—Establish one-way communication from the host to the printer. Disabled—Turn off parallel communication with the host. The printer stops accepting print jobs over the parallel interface.
Default	Noninteractive
Notes	The printer must be restarted for changes to the menu to take effect. You can either let the printer restart automatically after you save the change and exit from the Configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer. See chapter 3, “Additional Technical Information,” for a discussion of the different modes.

Emulation

Sets the parallel interface emulation.

Menu	Administration/Communications/Parallel/Emulation
Choices	ESP, Hexdump, PostScript, PCL5e, HP-GL, Lineprinter » **Note:** *Other optional emulations, such as LN03+, QUIC, TIFF, CALS, CCITT, and CGM, also appear, if installed.*
Default	ESP

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Minimum Number of Kilobytes for Spooling

Sets the minimum number of kilobytes of system memory allocated to the parallel interface.

Menu	Administration/Communications/Parallel/Min K Spool
Choices	00000-99999
Default	00015
Notes	This value must be less than K Mem For Spool in the administration/ memory submenu. A 00000 value does not turn off the spooling buffer for the parallel interface. If the value is set to 00000, the printer calculates the Min K Spool automatically at initialization. The printer must be restarted for changes to the Min K Spool menu to take effect. You can either let the printer restart automatically after you save the change and exit the configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer.

Spooling Timeout

Sets the number of seconds the interface waits for data from the host before terminating a spooled print job.

Menu	Administration/Communications/Parallel/Spool Timeout
Choices	00000-99999
Default	00030

Data Bits

Sets the number of data bits transmitted per character.

Menu	Administration/Communications/Parallel/Data Bits
Choices	7 bits, 8 bits
Default	8 bits

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End Job Mode

Enables (and identifies an end-of-job sequence) or disables data stream sensing for the end-of-document (EOD) command.

Menu	Administration/Communications/Parallel/End Job Mode
Choices	None—The printer recognizes only the PostScript ^D command. QMS EOD—The printer recognizes only the QMS %%EndOfDocument command. HP EOD—The printer recognizes only the HP <ESC>%12345X command.
Default	None
Notes	See chapter 3, “Additional Technical Information,” for details on how to implement this feature on your QMS 3260/4032 Print System.

Default Job Priority

Allows you to specify which jobs are printed first, according to the interface through which they are received, when jobs are received simultaneously.

Menu	Administration/Communications/Parallel/Def Job Prio
Choices	001-100 (highest-lowest priority)
Default	001 (highest priority)
Notes	For example, you can give jobs received via the parallel interface priority over jobs received via another interface.

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PS Protocol

Sets the binary communications protocol (BCP) for communicating over a parallel interface to a PostScript printer.

Menu	Administration/Communications/Parallel/PS Protocol
Choices	Normal—Enables standard, ASCII (7-bit) hex protocol. Data is sent and received in ASCII format. This mode is recommended if you do not print binary data. It was designed for data in the printable ASCII range. Print jobs can change this setting through PostScript operators. Normal Fixed—Enables standard, ASCII (7-bit) hex protocol. Print jobs cannot change this setting through PostScript operators. Binary—Enables binary communications protocol (BCP). Print jobs can change this setting through PostScript operators. Data in the printable ASCII range also prints. Binary Fixed—Enables binary communications protocol (BCP). Print jobs cannot alter change this setting through PostScript operators. Data in the printable ASCII range also prints.
Default	Normal
Notes	See chapter 3, “Additional Technical Information,” for a full discussion of PS Protocol.

Setting Resident Network Interface Connection (NIC) Options

CrownNet

For information on options and defaults found in this menu, see chapter 2, “Printer Configuration,” in the QMS *CrownNet System Administrator’s Guide*. These options also appear under the Optional NIC menu if a second interface card is installed.

Mode

The **Mode** menu allows you to enable or disable network communication over the CrownNet interface. This ability is useful if you’re not planning to use the interface. By

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disabling it, the memory used by the interface spooler can be allocated to other memory clients.

Menu	Administration/Communications/Resident NIC/Mode
Choices	**Enabled**—Enables the printer to accept print jobs over the interface. **Disabled**—Disables the printer from accepting print jobs over the interface.
Default	Enabled
Note	Mode can appear under the Common menu on some printers

Emulation

Use the Emulation menu to select the default emulation (from those installed on the printer) for print jobs received over the interface.

Menu	Administration/Communications/Resident NIC/Emulation
Typical Choices	**CCITT**—CCITT Groups 3 and 4 emulation. **ESP**—Emulation Sensing Processor technology. Using a form of artificial intelligence, ESP technology analyzes incoming file data from the interface and determines which emulation, from those installed on the printer, to use to print the job. **Hexdump**—Hexdump. This emulation prints the hexadecimal values of all non-protocol bytes (those that are part of the original file) received over the interface. **HP-GL**—HP-GL emulation. **Lineprinter**—Line printer output. **LN03**+—DEC LN03 Plus emulation. **PCL4**—HP PCL 4 emulation. **PCL5**—HP PCL 5 emulation. **PostScript**—PostScript Level 1 and Level 2 emulations. **QUIC II**—QMS QUIC II language.
Default	Printer-dependent; however, the typical default is ESP.
Notes	Choices in this menu are printer-dependent. Those listed above are only typical choices. Emulation can appear under the Common menu on some printers. Changes take effect on the next print job.

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Min K Spool

Use the Min K Spool menu to define the size of the job spooling buffer allocated to the interface. Min K Spool is the minimum number of kilobytes of the spool buffer (both RAM and optional disk) allocated to data received via the interface.

Menu	Administration/Communications/Resident NIC/Min K Spool
Choices	Printer-dependent
Default	Printer-dependent
Notes	A zero for spool space does not turn an interface off. If an interface is not to be used, disable it (Administration/Communications/Resident NIC/ CrownNet/*Interface*/Protocol menu) so memory assigned to it will be assigned to the other protocols. The sum of Min K Spool settings for all of the installed communications interfaces must be less than or equal to the setting in the Administration/ Communications/K Mem for Spool menu. If Min K Spool is set to zero, the system automatically calculates a new value for it (½ of that available in K Mem for Spool) each time the printer is turned on. If the sum of the Min K Spool settings for all installed interfaces is less than the setting of K Mem for Spool, the remaining space is considered float memory, memory that can be allocated as necessary. When an interface has used its default allotment, it may use any available float memory to spool additional data. The float memory is allocated on a first-come, first-served basis. No interface is guaranteed access to any spool buffer beyond its Min K Spool value. Min K Spool can appear under the Common menu on some printers.

Default Job Priority

Allows you to specify which jobs are printed first, according to the interface through which they are received, when jobs are received simultaneously.

Menu	Administration/Communications/Resident NIC/Def Job Prio
Choices	001-100 (highest-lowest priority)

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Default	001 (highest priority)
Notes	For example, you can give jobs received via the Ethernet interface priority over jobs received via another interface.

PS Protocol

Sets the binary communications protocol (BCP) for communicating over a CrownNet interface to a PostScript printer.

Menu	Administration/Communications/Resident NIC/PS Protocol
Choices	Normal—Enables standard, ASCII (7-bit) hex protocol. Data is sent and received in ASCII format. This mode is recommended if you do not print binary data. It was designed for data in the printable ASCII range. Print jobs can change this setting through PostScript operators. Normal Fixed—Enables standard, ASCII (7-bit) hex protocol. Print jobs cannot change this setting through PostScript operators. Binary—Enables quoted binary communications protocol (BCP). Print jobs can change this setting through PostScript operators. Data in the printable ASCII range also prints. Binary Fixed—Enables binary communications protocol (BCP). Print jobs cannot change this setting through PostScript operators. Data in the printable ASCII range also prints. QBinary (Quoted Binary)—Enables quoted binary communications protocol. Print jobs can change this setting through PostScript operators. Data in the printable ASCII range also prints. Use the special quoting mechanism (see the following section) for the special characters and ^D (EOF). QBinary (Quoted Binary) Fixed—Enables binary communications protocol (BCP). Print jobs cannot alter change this setting through PostScript operators. Data in the printable ASCII range also prints. Use the special quoting mechanism (see the following section) for the special characters and ^D (EOF).
Default	Normal
Notes	See chapter 3, “Additional Technical Information,” for a full discussion of PS Protocol.

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Setting LocalTalk Interface Parameters

Use the Administration/Communications/LocalTalk menu to set the optional LocalTalk interface values used for printer-host communication. This menu only appears if the optional LocalTalk interface is installed in your printer.

Mode

Enables or disables the communication interface.

Menu	Administration/Communications/LocalTalk/Mode
Choices	Enabled—Establishes one-way LocalTalk communication from the host to the printer. Disabled—Turns off the LocalTalk interface, and the printer stops accepting LocalTalk interface print jobs.
Default	Enabled
Notes	The printer must be restarted for changes to the Mode menu to take effect. Changing the Mode setting will cause the REBOOT NOW? prompt to appear. Your can either choose to restart the printer now and this change takes effect immediately or you can manually restart the printer and have this change take effect later.

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Min K Spool

Sets the minimum number of kilobytes of system memory allocated to the LocalTalk interface.

Menu	Administration/Communications/LocalTalk/Min K Spool
Choices	00000-99999
Default	00015
Notes	This value must be less than K Mem For Spool (Administration/Memory menu). A 00000 value does not turn off the spooling buffer for the LocalTalk interface. If the value is set to 00000, the printer calculates the Min K Spool automatically at initialization. The printer is immediately restarted when a change is made to this option. (For example, change the value to 35, press the Select key, and the menu changes to LocalTalk. Press the Online key and the printer automatically reboots.)

Connection

Allows you to enable or disable print spooling.

Menu	Administration/Communications/LocalTalk/Connection
Choices	Conventional—Allows one LocalTalk connection and accepts only one print job at a time. If two users send print jobs to the printer, the workstation belonging to the first user is unavailable until the first job has been printed, and the workstation belonging to the second user is unavailable until both jobs have been printed. Spool—Allows multiple LocalTalk connections and accepts (spools) more than one print job at a time. Workstations are available while jobs are printing. Both—Allows both single and multiple LocalTalk connections.
Default	Conventional

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PS Protocol

Sets the binary communication protocol (BCP) for communicating over a LocalTalk interface to a PostScript printer. See chapter 3, “Additional Technical Information,” for a full discussion of PS Protocol.

Menu	Administration/Communications/LocalTalk/PS Protocol
Choices	Normal—Enables standard, ASCII (7-bit) hex protocol. Data is sent and received in ASCII format. This mode is recommended if you do not print binary data. It was designed for data in the printable ASCII range. Print jobs can change this setting through PostScript operators. Normal Fixed—Enables standard, ASCII (7-bit) hex protocol. Print jobs cannot change this setting through PostScript operators. Binary—Enables binary communications protocol (BCP). Print jobs can change this setting through PostScript operators. Data in the printable ASCII range also prints. Binary Fixed—Enables binary fixed communications protocol (BCP). Print jobs cannot alter change this setting through PostScript operators. Data in the printable ASCII range also prints.
Default	Normal
Notes	See chapter 5, “Additional Technical Information,” of the *Reference* manual for a full discussion of PS Protocol.

Def Job Prio

Allows you to specify which jobs are printed first, according to the interface through which they are received, when jobs are received simultaneously. In other words, you can give jobs received via the LocalTalk interface priority over jobs received via the parallel or optional serial interface.

Menu	Administration/Communications/LocalTalk/Def Job Prio
Choices	001-100 (highest-lowest priority)
Default	001 (highest priority)

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Emulations

Use the Administration/Emulations menu to set the parameters for the available printer emulations. Optional printing emulations appear only if installed.

» **Note:** *To choose an emulation or ESP for a particular interface, use the appropriate interface menu in the Administration/Communications menu.*

Setting ESP Default Parameters

The ESP Default Emul sets the ESP default emulation used when ESP is unable to identify the language of a print job. This allows the system administrator to select alternate default emulations.

Menu	Administration/Emulations/ESP Default
Choices	HP-GL, Lineprinter, PCL5e, PostScript » **Note:** *Other optional emulations; such as LN03+, QUIC, TIFF, CALS, CCITT, and CGM, also appear, if installed.*
Default	PCL5e

Setting PostScript Parameters

The PostScript menu allows you to select halftone type and intensity.

Halftone Type

Sets the halftone type.

Menu	Administration/Emulations/PostScript/Halftone Type
Choices	Basic Standard Advanced
Default	Standard

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These three options allow you to customize the smoothness of the printed image according to the number of grayscales it uses. The number of gray levels increases by increasing the halftone type and the printer resolution.

See the “Halftones,” section in chapter 3, “Additional Technical Information,” for more detailed information on halftones and how to change their characteristics via the printer configuration menu.

Intensity

Sets the intensity for PostScript printing.

Menu	Administration/Emulations/PostScript/Intensity
Choices	Darkest, Darker, Nominal, Lighter, Lightest
Default	Nominal
Notes	Intensity uses the PostScript settransfer operator’s functionality to make the print lighter or darker while maintaining the linearity of the grayscale.

Setting PCL 5e Parameters

The PCL 5e menu maintains PCL 5e emulation attributes such as default font, symbol set, and point size. There are ten configuration settings.

Default Font

Sets the printer’s default font.

Menu	Administration/Emulations/PCL 5e/Default Font
Choices	Courier12*, Courier12bold*, Courier12italic*, Courier10*, Courier10bold*, Courier10italic*, Lineprinter, Times*, Times*Italic, Times*Bold, Times*BldItalic, Univ*, Univ*Italic, Univ*Bold, Univ*BldItalic, Univcond*, Univcond*Italic, Univcond*Bold, Univcond*BldItlc, Select By Index

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Default	Courier12*
Notes	Fonts with an asterisk "*" in their names are scalable. Their default point size is set by the Point Size x100 option. Choosing Select By Index as the default font selects the font by the index number printed on the advanced status page and is set through the Default Font Index option. » **Note:** *You must use the Select By Index value to select an Intellifont.* All lineprinter fonts are bitmap fonts, so they have a fixed point size. Selecting a bound, bitmap font overrides the default settings for symbol set and point size. An unbound font uses the specified default symbol set if possible, and a scalable font uses the default font size.

Symbol Set

Selects the default symbol set for the emulation.

Menu	Administration/Emulations/PCL 5e/Symbol Set
Choices	Roman-8, PC-850, PC8-US, PC8-DN, Legal, ISO-4, ISO-6, ISO-11, ISO-15, ISO-17, ISO-21, ISO-60, ISO-69, Desktop, PS Math, Math 8, Microsoft-Pub, Pi-font, PS-Text, Ventura-Intl, Ventura-Math, Ventura-US, Windows, ISO-Latin-1, ISO-Latin-2, ISO-Latin-5, PC-852, PC-8tk, Windows 3.1-1, Windows 3.1-2, Windows 3.1-5, MC-Text
Default	Roman-8
Notes	Not all symbol sets are available with certain resident fonts. In particular, the Desktop, PS Math, Math 8, Microsoft Pub, Pi Font, PS Text, Ventura Intl, Ventura Math, Ventura US, and Windows symbol sets cannot be used with the resident bitmap lineprinter font. If a mismatch between symbol set and fonts occurs, the standard PCL font selection mechanism is used to locate a font that matches the selected symbol set. With the standard set of fonts distributed for your printer, this matches the Times* font, but other user-installed fonts could change this result.

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Lines Per Inch

Sets the default lines printed per inch in PCL jobs, regardless of page size.

Menu	Administration/Emulations/PCL 5e/Lines/Inch x100
Choices	0100 to 4800 (lines/inch x 100)
Default	0600 (lines/inch x 100)
Notes	You must enter the number of lines per inch times 100. For example, 6 lines per inch is entered as 0600; 6.6 lines per inch is entered as 0660.

Line Termination

Indicates the default line termination mode. This setting specifies the treatment of line feeds and carriage returns. (See Appendix C, “Document Option Commands,” for more information on line termination).

Menu	Administration/Emulations/PCL 5e/Line Termination
Choices	CR=CR LF=LF CR=CR+LF LF=LF CR=CR LF=CR+LF CR or LF=CR+LF
Default	CR=CR LF=LF

Point Size x100

Sets the point size for scalable default fonts in units of hundredths of a point. For example, a 24 point default point size is selected by entering 2400. The smallest increment allowed in point size is .25 point (for example, 8.5 point and 8.75 point fonts are allowed, but 8.6 point is not).

Menu	Administration/Emulations/PCL 5e/Point Size x100
Purpose	Sets the point size for scalable default fonts increments of .01 point. For example, a 24 point default point size is selected by entering 2400. The smallest increment allowed in point size is .25 point. For example, 8.5 point and 8.75 point fonts are allowed, but 8.6 point is not.
Choices	00025-99975 (0.25-999.75 points)

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Default	01200 (12 points)
Notes	If the font is not scalable or if a bitmap font is specified, the setting is ignored.

Retain Temporary

Allows you to control the PCL 5e print environment across print jobs.

Menu	Administration/Emulations/PCL 5e/Retain Temporary
Choices	Off, On, On Compatibility Off—Resets PCL to its default state at the end of each PCL print job, executes an implicit <ESC>E at the start and end of the job, and deletes any temporary fonts, macros, and patterns. On—Resets PCL to its default state at the end of each PCL print job. Temporary fonts, macros, and patterns from previous PCL jobs are retained in memory after the print job has completed. You can recall these downloaded fonts, macros, or patterns from within your PCL file without having to download them again. On Compatibility—Retains the entire state of PCL as well as the temporary macros, fonts, and patterns from previous PCL jobs.
Default	Off
Notes	A retained state is cleared if you do any of the following: ■ Explicitly clear the PCL state by sending an <ESC>E or Printer Job Language. ■ Turn off the printer. (Note that if Retain Temporary is set to On or On Compatibility and power is turned off and back on again, all temporary objects on the disk's standard resource will become permanent. RAM-based temporary objects are lost). ■ Change any PCL front panel option. ■ Send any PCL-specific DOC commands (except the DOC emulation command). ■ Send a PCL job from a different communications port. For example, the state set up by a PCL job using the parallel port is cleared if a subsequent PCL job arrives at the serial port).

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Default Font Index

Sets the Default Font Index when the Default Font is set to selectbyindex.

Menu	Administration/Emulations/PCL E/Default Font Idx
Choices	0 to 32767
Default	00000
Note	The index number can be obtained by the listing printed on the advanced status page.

Monochrome GL/2

Allows your printer to emulate a monochrome or color plotter.

Menu	Administration/Emulations/PCL 5e/Monochrome GL 2
Choices	On, Off On—Sets the printer to monochrome (2 pen). Off—Sets the printer to color (8 pen). Since a monochrome print system has two pen colors only (black and white), grayscale patterns are substituted for other colors. The printer maps each pen to its assigned color, then converts the color to a grayscale using the National Television System Committee (NTSC) color standard for luminosity coefficients (Additive System): Y = .3R + .59G + .11B Examples on How to Use the Color Standard Formula White Y = [(1*0.3) + (1*0.59) + (1*0.11)]—100% gray Black Y = [(0*0.3) + (0*0.59) + (0*0.11)]—0% gray Red Y = [(1*0.3) + (0*0.59) + (0*0.11)]—30% gray Green Y = [(0*0.3) + (1*0.59) + (0*0.11)]—59% gray Yellow Y = [(1*0.3) + (1*0.59) + (0*0.11)]—89% gray Blue Y = [(0*0.3) + (0*0.59) + (1*0.11)]—11% gray Magenta Y = [(1*0.3) + (0*0.59) + (1*0.11)]—41% gray Cyan Y = [(0*0.3) + (1*0.59) + (1*0.11)]—70% gray

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Default	On **Pen Color Defaults** Pen 0 = WhitePen 1 = Black Pen 2 = RedPen 3 = Green Pen 4 = YellowPen 5 = Blue Pen 6 = MagentaPen 7 = Cyan

Download Location

Controls the default storage location of PCL objects (fonts, macros, and patterns) when it is not otherwise specified through DOC commands.

Menu	Administration/Emulations/PCL 5e/Downld Location
Choices	Disk—All downloaded PCL objects are stored in the default disk resource, if present. Memory—All downloaded PCL objects are stored in temporary storage in RAM.
Default	Memory
Notes	If this is set to memory, before downloading any fonts, macros, or patterns, ensure that the printer has enough memory to do the download. See chapter 3, “Additional Technical Information,” for information on increasing printer memory when downloading fonts. DOC commands specifying resources override this option on a per-job basis. If the printer has a large amount of memory, setting this option to Memory enhances printer performance.

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Setting HP-GL Parameters

This section contains the configuration choices available under Emulations/HP-GL.

Plotter

Identifies the HP-GL plotter type.

Menu	Administration/Emulations/HP-GL/Plotter
Choices	7475A— 7470A— Colorpro— 7550A— DraftMaster—Supports architectural and engineering paper sizes (for example, A to E and Arch A to Arch E). These paper sizes describe a mapping to the physical paper. This mapping is a scaling factor (or a size ratio) between the chosen paper size and the physical paper size in the default inputbin. For example if A3 is selected (size 11.69" x 16.54") for paper size and the physical paper size in the default inputbin is A4 (8.27" x 11.69"), then the plot is scaled by a factor of 2.
Default	7550A

Scaling Percent

Identifies the percentage to reduce or enlarge an image.

Menu	Administration/Emulations/HP-GL/Scaling Percent
Choices	001-150 (1-150%)
Default	100 (100%)
Notes	To scale plots, select the paper size originally used for the plot in the Paper Type menu and then enter the reduction or enlargement needed to fit the plot on the new page in the Scaling Percent menu.

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Origin

Sets the image offset from the plotter's origin in 0.001" increments.

Menu	Administration/Emulations/HP-GL/Origin/Mode
Choices	Off, On
Default	On

Menu	Administration/Emulations/HP-GL/Origin/X Direction
Choices	0000-8500 (0" - 8.5")
Default	0000

Menu	Administration/Emulations/HP-GL/Origin/Y Direction
Choices	0000-11000 (0" - 11.0")
Default	0000

Enhanced Mode

Menu	Administration/Emulations/HP-GL/Enhanced Mode
Purpose	Increases the resolution of the grid for downloaded characters. The HP-GL UC (User-defined Character) command allows you to download and draw characters using an encoding scheme consisting of sequences of pen control movements and coordinate sequences. The characters are drawn on a grid that is superimposed on the character plot cell.
Choices	On—Standard resolution for fixed- and variable-spaced fonts (4x8 grid). Off—Enhanced resolution for variable-spaced fonts (26x36 grid).
Default	Off

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Expand Mode

Menu	Administration/Emulations/HP-GL/Expand Mode
Purpose	Defines a larger imageable area which affects the default placement of the scaling points P1 and P2.
Choices	On—Turn on expand mode Off—Use default scaling points, plotting range, and plotting area.
Default	Off
Notes	The available range of plotter units for a particular paper size is only partially determined by setting the Expand Mode to On. When the printer/plotter senses the paper size it automatically sets the hard clip limit to 15mm on three sides and 39 mm on the fourth. If Expand Mode is On, then the hard clip limits are set to 5mm on three sides and 29 mm on the fourth side. This is what allows you to define a larger imageable area. The HP-GL emulation senses the paper type if the paper type is set to Scale to Paper. It is also possible to have the HP-GL emulation use a particular paper size by setting Original Paper Type through the control panel or by using a Document Option Command.

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Paper Type

Identifies the original image's paper size.

Menu	Administration/Emulations/HP-GL/Paper Type	
Purpose	Identifies the original image's paper size.	
Choices	A—(8.5"x 11"—216 x 279 mm), A0—(33.11" x 46.81"—841 x 1189 mm) A1—(23.39" x 3.11"—594 x 1189 mm) A2—(16.54" x 23.29"—420 x 594 mm) A3—(11.69" x 16.54"—297 x 420 mm) A4—(8.27" x 11.69"—210 x 297 mm) B—(11" x 17"—279 x 432 mm) C—(17" x 22"—431.80 x 558.80 mm) D—(22" x 34"—558.80 x 863.60 mm) E—(34" x 44"—863.60 x 1117.60 mm)	C ARCH D ARCH E ARCH Retain Scale
Default	Retain Scale	

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Pen 1 - Pen 8

Menu	Administration/Emulations/HP-GL/Pen *x*/Pen Width
Purpose	Sets the width and color for the eight plotter pens. Each pen has a width and a color option available.
Choices	0-60 (0.0-6.0 mm)
Default	Pen 1—7 (0.7 mm) Pen 2—3 (0.3 mm) Pen 3—3 (0.3 mm) Pen 4—3 (0.3 mm) Pen 5—3 (0.3 mm) Pen 6—3 (0.3 mm) Pen 7—3 (0.3 mm) Pen 8—3 (0.3 mm)
Note	A choice of 0 defaults to one pixel width.

Menu	Administration/Emulations/HP-GL/Pen *x*/Pen Color
Choices	Black, Blue, Brown, Cyan, Gray-25%, Gray-50%, Gray-75%, Green, Magenta, Orange, Red, Violet, Yellow
Default	Pen 1—Black (100% black) Pen 2—Black (100% black) Pen 3—Red (70% black) Pen 4—Green (41% black) Pen 5—Blue (89% black) Pen 6—Violet (59% black) Pen 7—Orange (25.8% black) Pen 8—Brown (50% black)
Notes	See chapter 3, “Additional Technical Information,” for more information on the HP-GL emulation color encoding equation.

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Setting Line Printer Parameters

The following twelve configuration options are available.

Font

Menu	Administration/Emulations/Line Printer/Font
Purpose	Sets the printer fonts for the current print job. Any PostScript fonts available on the printer can be used. To see a list of available PostScript fonts, print an advanced status page.
Choices	All printer-resident PostScript fonts.
Default	Courier

Autowrap

Menu	Administration/Emulations/Line Printer/Autowrap
Purpose	Indicates whether long lines are to be wrapped to the next line instead of being truncated.
Choices	On—Wrap long lines. Off—Truncate long lines.
Default	On

Character Map

Menu	Administration/Emulations/Line Printer/Character Map
Purpose	Specifies the type of character map to be used.
Choices	ASCII, EBCDIC
Default	ASCII

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CR is CRLF

Menu	Administration/Emulations/Line Printer/CR is CRLF
Purpose	Specifies whether each carriage return (CR) in the print job is translated to a carriage return/line feed (CRLF) combination.
Choices	On—Translate all carriage returns to line feeds. Off—Use carriage returns only as carriage returns.
Default	Off

FF is CRFF

Menu	Administration/Emulations/Line Printer/FF is CRLF
Purpose	Specifies whether each form feed (FF) in the print job is translated to a carriage return/form feed (CRFF) combination.
Choices	On—Translate all form feeds to carriage return/form feed combinations. Off—Use form feeds only as form feeds.
Default	On

LF is CRLF

Menu	Administration/Emulations/Line Printer/LF is CRLF
Purpose	Specifies whether each line feed (LF) in the print job is translated to a carriage return/line feed (CRLF) combination.
Choices	On—Translate all line feeds to carriage return/line feed combinations. Off—Use line feeds only as line feeds.
Default	On

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Line Numbering

Menu	Administration/Emulations/Line Printer/Line Numbering
Purpose	Specifies that a five-digit number is to be prefixed to each line.
Choices	On—Number all lines. Off—Don't number lines.
Default	Off

Lines Per Page

Menu	Administration/Emulations/Line Printer/Lines per Page
Purpose	Specifies the number of lines printed on a page before an automatic page eject. Interline spacing is set to the selected point size. Logical pages consisting of more lines than specified are split into multiple pages.
Choices	001-128
Default	87

Margins

Menu	Administration/Emulations/Line Printer/Margins
Purpose	Defines the left, right, top, and bottom margins in 1/7200" increments.
Choices	Bottom 0-79200 (0"-11.00") Left 0-79200 (0"-11.00") Right 0-79200 (0"-11.00") Top 0-79200 (0"-11.00")
Default	Bottom 0 Left 0 Right 0 Top 0
Note	The margins are in 1/7200" increments (79200 is 11.00" at 7200 increments).

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Orientation

Menu	Administration/Emulations/Line Printer/Orientation
Purpose	Specifies whether text and graphics are placed on the page in a portrait or landscape orientation.
Choices	Landscape, Portrait
Default	Portrait

Point Sz 100ths

Menu	Administration/Emulations/Line Printer/Point Sz 100ths
Purpose	Sets the five-digit value used to specify the point size of the font for the current print job.
Choices	00000-99999
Default	00880 (8.8 points)

Tab Stops

Menu	Administration/Emulations/Lineprinter/Tab Stops
Purpose	Specifies the number of spaces between tab stops.
Choices	000-256
Default	8

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Special Pages

Use the Administration/Special Pages menu to print special pages, such as status pages, calibration page, header pages, and trailer pages.

Printing a Calibration Page

Prints a calibration page.

Menu	Administration/Special Pages/Calibration Page
Choices	Yes—Prints calibration page. No—Calibration page will not be printed.
Default	Yes
Notes	See the Administration/Engine/Image Alignment menu for calibration instructions.

Working with Header Pages

The information on the header page can be customized. See the QMS *Crown Document Option Commands* manual on the QMS *Software Utilities* CD-ROM for more information.

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Enabling/Disabling Header Pages

Menu	Administration/Special Pages/Header Page
Choices	On—Print a header page before each job. Off—Don't print a header page before each job.
Default	Off
Notes	A header page is a separator page that prints before a print job to help users sort their jobs.

Identifying a Header Page Input Source

You can select the input bin (tray) from which the printer pulls paper when printing the header page.

Menu	Administration/Special Pages/Header Inputbin
Choices	Multipurpose—Pull header page media from the multipurpose tray (standard #1) Upper—Pull header page media from the upper (standard #2) tray. Lower—Pull header page media from the lower (standard #3) tray. Optional 5—Pull header page media from the first tray of the optional lower input feeder, if installed. Optional 6—Pull header page media from the optional lower left input feeder, if installed. Optional 7—Pull header page media from the optional lower right input feeder, if installed.
Default	Multipurpose
Notes	If you used the Administration/Engine/Inputbin *x* Name options to change the names of the input bins, these names replace Upper, Middle, and Lower in the message window.

Working with Trailer Pages

A trailer page is a separator page that prints after a print job to help users sort out their jobs and, if requested, identify print job errors.

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Enabling/Disabling Trailer Pages

Menu	Administration/Special Pages/Trailer Page
Choices	On—Print a trailer/error page for each print job. Off—Don't print a trailer/error page for each print job. On Error—If any print job errors exist, print a trailer page that lists the errors as well as other trailer page information. Error Only—If any print job errors exist, print a trailer page that lists the errors but omits other trailer page information.
Default	Off
Notes	A trailer page is a separator page that prints after a print job to help users sort out their jobs and, if requested, identify print job errors. See the QMS *Crown Document Option Commands* manual for more information.

Identifying a Trailer Page Input Source

Menu	Administration/Special Pages/Trailer Inputbin
Choices	Multipurpose—Pull header page media from the multipurpose tray (standard #1) Upper—Pull header page media from the upper (standard #2) tray. Lower—Pull header page media from the lower (standard #3) tray. Optional 5—Pull header page media from the first tray of the optional lower input feeder, if installed. Optional 6—Pull header page media from the optional lower left input feeder, if installed. Optional 7—Pull header page media from the optional lower right input feeder, if installed.
Default	Multipurpose
Notes	If you used the Administration/Engine/Inputbin *x* Name options to change the names of the inputbins, these names replace Upper, Middle, and Lower in the message window.

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Working with Status Pages

Printing a status page is a two-step procedure: Identify the type of status page you want to print, and then print it.

Identifying a Status Page Type

Two types of status pages are available.

Menu	Administration/Special Pages/Status Page Type
Choices	Standard—Lists printer identification information, current memory configuration, timeouts, communication settings, input buffer sizes, and available fonts. » **Note:** *The number of sheets/faces printed statistics on the status page differ from the number of sheets/faces printed statistics in CrownView and on the consumables statistics page (Operator Control/Consumables/Print Statistics). The numbers on the status page refer to the number of sheets/faces printed during the life of the printer. The numbers in CrownView and on the consumables statistics page refer to the number of sheets/faces printed to date during the current consumables tracking period (Administration/Consumables/Start Period menu).* Advanced—Contains the same information as the standard status page as well as configuration menu settings, fonts, and downloaded emulations.
Default	Standard

Printing a Status Page

After you have identified the type of status page to print, use the Status Page button on the printer control panel to print it.

» **Note:** *If you choose an advanced status page but only a standard status page prints, the printer has run out of RAM. Either reallocate memory among the memory clients (see chapter 3, "Additional Technical Information,") or consider adding more memory to the printer.*

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Start-Up Options

The Administration/Startup Options menu allows you to configure your printer to run certain options automatically when you turn it on.

Enabling/Disabling the Start-Up Page

By default, the printer prints a start-up page when you turn it on. The start-up page lists basic information about the printer, such as its name, the PostScript version, and various printer settings. However, you can turn the start-up page off to conserve paper and toner.

Menu	Administration/Startup Options/Do Start Page
Choices	Yes—Print a start-up page each time the printer is turned on. No—Don't print a start-up page each time the printer is turned on.
Default	Yes
Notes	A start-up page lists basic information about the printer, such as its name, the number of pages printed to date, the PostScript version, and various printer settings. You may want to turn the start-up page off to conserve paper and toner.

Enabling/Disabling the SYS START File

If you have a hard disk and Do Sys Start is enabled, when the printer is turned on, the controller checks the hard disk for a PostScript file named SYS\START and executes this file.

Menu	Administration/Startup Options/Do Sys Start
Choices	Yes—Check the hard disk for and execute the SYS\START file when the printer is turned on. No—Don't check the hard disk for a SYS\START file.

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Default	Yes
Notes	This file does not print. Information on creating a SYS\START file is available via Q-FAX (see appendix A, “QMS Customer Support,” for information on using Q-FAX).

Loading the PostScript Error Handler

Error Handler is a diagnostic tool that identifies PostScript errors encountered during a print job.

Menu	Administration/Startup Options/Do Error Handler
Choices	Yes—Load the Error Handler at power on. No—Don’t load the Error Handler.
Default	No
Notes	You must restart the printer before this change will take effect. Refer to the *PostScript Language Reference Manual* (Adobe Systems Incorporated, Reading, PA: Addison-Wesley, 1990, ISBN 0-201-18127-4) for more information on PostScript errors.

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Memory

This submenu allows you to allocate the printer's memory (RAM) among the various memory clients. The flexibility of defining memory available to clients allows experienced users to optimize the printer's performance according to a given set of conditions.

This section briefly describes each of the memory submenus and the memory clients. See chapter 3, "Additional Technical Information," for more detailed information on the printer's memory and what benefits, if any, may result from adding memory to each client.

To find out how memory is currently allocated, print a status page using the Print Status button on the control panel or check each client individually in the configuration menu.

Quick Configuration

» **Note:** *The Quick Config menu appears only if there is no hard disk installed in the printer or if the Administration/Memory/Enable Disk Swap option is turned off.*

Menus	Administration/Memory/Quick Config/300 dpi Administration/Memory/Quick Config/600 dpi Administration/Memory/Quick Config/1200 dpi
Purpose	Configures the memory clients to the settings which allow the printer to perform best for each resolution.
Choices	Legal, Letter/A4, 11x17
Notes	The printer is automatically restarted after this menu change. The results of Quick Config depend on the amount of memory installed, the resolution used for printing, and the media size. Under the Quick Config option documented on the advanced status page you will see "****". This option isn't user-definable. Quick Config configures memory depending only on the resolution and paper size.

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Disk Swapping

Disk swapping gives your printer virtual memory capability for all memory clients through the creation of a “swap file” on the printer’s hard disk. The printer uses this file as an extension of its memory. As the physical RAM fills, the printer can swap the contents to the hard disk file to allow more space. This file swapping between disk and RAM occurs at various times throughout the printing process and is completely transparent.

» **Note:** *The printer must have a hard disk to take advantage of this feature. If there is no hard disk installed, this menu does not appear.*

Menu	Administration/Memory/Enable Disk Swap
Purpose	Enables or disables disk swapping.
Choices	Off—Don’t enable disk swapping. On—Enable disk swapping.
Default	On
Notes	If disk swapping is enabled and the hard disk is removed or not turned on, the printer automatically resets to the factory defaults. The printer must be restarted for changes to the Enable Disk Swap and other memory menus to take effect. You can either let the printer restart automatically after you save the change and exit from the configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer.

Manual Configuration Menu

The manual configuration menu allows you to finely adjust memory clients to your particular printing needs.

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Configuring Spooling

The K Mem for Spool, listed on the status page as Host Input, is the total number of kilobytes of RAM allocated to all spooling buffers. This memory client stores incoming data from the various interfaces until it is processed and printed.

Menu	Administration/Memory/Manual Config/K Mem for Spool
Purpose	Sets the total number of kilobytes of RAM allocated to all spooling buffers, which store incoming data from the various interfaces until it is processed and printed.
Status Page Equivalent	Host Input
Choices	00000-99999
Notes	This value must be greater than the sum of the Min K Spool for all installed and enabled interfaces. The maximum value listed depends on the amount of memory installed. When the sum of the Min K Spool for all interfaces is less than K Mem for Spool, memory is allocated as follows: ■ Interfaces with Min K Spool (in the Administration/Communications menu) value greater than zero receive their specified allocation. ■ The remaining memory in K Mem for Spool is allocated to Shared Spooling Space. This can be seen in the Communications Settings & Input Buffer Sizes area of the status page. ■ The Shared Spooling Space can be allocated to any of the communication interfaces if the input jobs require more spooling space. The limit to this is the amount of Host Input (K Mem for Spool) shown on the status page. » **Note:** *If you add the Input Buffer Sizes allocated to each interface and the Shared Spooling Space, the result should equal Host Input.* If you change the K Mem for Spool value, the printer automatically restarts after you save your changes and exit from the configuration menu.

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PostScript Heap

The K Mem for PSHeap, listed on the status page as Heap, is the number of kilobytes of RAM dedicated to the PostScript emulation interpreter. This memory client holds downloaded PostScript emulation fonts, operators, and forms.

Menu	Administration/Memory/Manual Config/K Mem for PSHeap
Purpose	Sets the number of kilobytes of RAM dedicated to the PostScript emulation interpreter, which holds downloaded PostScript emulation fonts, operators, and forms.
Choices	0-99999
Notes	If you change the K Mem for PSHeap value, the printer automatically restarts after you save your changes and exit from the configuration menu. The maximum value listed depends on the amount of memory installed.

PostScript Fonts

The K Mem for PS Fonts, listed on the status page as Font Cache, is the number of kilobytes of RAM dedicated to caching previously scaled bitmap representations of fonts for the PostScript emulation interpreter.

Menu	Administration/Memory/Manual Config/K Mem for PS Fonts
Purpose	Sets the number of kilobytes of RAM dedicated to caching previously scaled bitmap representations of fonts for the PostScript emulation interpreter.
Choices	0-99999
Notes	This memory setting can reduce the number of times a PostScript font must be converted from outline form to bitmap form, thus reducing processing time. The maximum value listed depends on the amount of memory installed. If you change the K Mem for PS Fonts value, the printer automatically restarts after you save your changes and exit from the Configuration menu.

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Emulation

The K Mem Emulation, listed on the status page as Emulation, is the number of kilobytes of RAM to be used by non-PostScript emulations for temporary storage and for loading optional emulations.

Menu	Administration/Memory/Manual Config/K Mem Emulation
Purpose	Sets the number of kilobytes of RAM to be used by non-PostScript emulations for temporary storage and for loading optional emulations.
Choices	0-99999
Notes	If you receive an emulation error, you may need to increase the amount of memory for this client. The maximum value listed depends on the amount of memory installed. If you change the K Mem Emulation value, the printer automatically restarts after you save your changes and exit from the configuration menu.

Emulation (Temporary)

The K Mem Emul Temp, listed on the status page as Emulation Temporary, is the number of kilobytes of RAM to be used by non-PostScript emulations for storing downloaded (soft) fonts, forms, or macros.

Menu	Administration/Memory/Manual Config/K Mem Emul Temp
Purpose	Sets the number of kilobytes of RAM to be used by non-PostScript emulations for storing downloaded (soft) fonts, forms, or macros.
Choices	0-99999
Notes	This value must be greater than the sum of the Min K Spool for all installed and enabled interfaces. Data in this client disappears when the printer is turned off. Increasing this client's size increases the number of PCL downloaded fonts which can be accepted. The maximum value listed depends on the amount of memory installed. If you change the K Mem Emul Tmp value, the printer automatically restarts after you save your changes and exit from the Configuration menu.

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Display List

The K Mem Display is the number of kilobytes of RAM dedicated to the display lists. The display list holds the intermediate representation of pages to be printed. Increasing the size of the Display List increases the number of pages that can be collated. The maximum number of pages that can be collated is 100 pages.

Menu	Administration/Memory/Manual Config/K Mem Display
Purpose	Sets the number of kilobytes of RAM dedicated to the display list, which holds the intermediate representation of pages to be printed.
Choices	0-99999
Notes	The maximum value listed depends on the amount of memory installed and if a hard disk is installed. If you change the K Mem Display value, the printer automatically restarts after you save your changes and exit from the configuration menu.

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Disk Cache

The disk cache stores frequently used data in system memory instead of continually storing and retrieving it from a hard disk. If a hard disk is used and a lot of disk access is required, adding memory to the disk cache may increase the printer's performance.

Menu	Administration/Memory/Manual Config/K Mem Disk Cache
Purpose	Sets the number of kilobytes of RAM dedicated to the disk cache, which speeds file system throughput on any installed hard disks by storing frequently used data in system memory instead of continually storing it to and retrieving it from a hard disk.
Status Page Equivalent	Disk Cache
Choices	00000-99999
Notes	If no hard disk is installed, the disk cache is set to the minimum value (00000. The printer then reallocates the released memory to other clients that need additional memory. The amount of memory needed for this memory client depends on the size and number of hard disks, the number of subdirectories on each disk, and the amount of memory dedicated to caching. If sufficient memory is available to the disk cache, all disks are accessible. If insufficient memory is available to the disk cache, some disks may be accessible while others may not be. The recommended amount of memory for the disk cache client is ■ 120 KB minimum ■ 0.5 KB per MB of disk storage total for all disks For example, the recommended amount of memory for the disk cache for a single 120 MB hard disk is 180 KB, and for two 120 MB hard disks it is 240 KB. These are recommended values. The printer will still operate with a smaller cache, but decreased performance may result. If you change the K Mem Disk Cache value, the printer automatically restarts after you save your changes and exit from the configuration menu.

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Frame Buffer

Frame buffer memory should always be the first memory client configured in the printer. After this, all other clients can be configured, depending on your printing needs. Anytime the frame buffer is changed, all of the other clients are resized to their default values. The frame buffer can be configured manually, through the Quick Config menu, or by resetting the printer defaults. In all cases, be sure to keep a copy of the advanced status page as a record of memory client settings. See chapter 3, “Additional Technical Information,” for more information on memory and the frame buffer client.

Menu	Administration/Memory/Manual Config/K Mem Framebuff
Purpose	Sets the number of kilobytes dedicated to the frame buffer, which holds rasterized or bitmapped images of page faces which are ready to be sent to the print engine.
Status Page Equivalent	Frame Buffer
Choices	0-99999
Notes	A frame holds the contents of each single page image. For example, a 600 dpi page printed on letter size paper would consume frame buffer memory space as follows: (600dpi x 600dpi x 8.5" x 11")/8 = 4,207,500 bytes or 4.1 MB. The actual value is lower because you’re dealing with imageable area. If the printer memory is upgraded, the printer automatically reconfigures Frame Buffer after detecting the mernory upgrade.

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Printer Memory

MB Printer Memory shows the size of the physical RAM installed in the printer. If a hard disk is installed and disk swapping is enabled (Administration/Memory/Manual Config/Enable Disk Swap), this field also adds the size of available virtual memory to the physical RAM installed in the printer.

Menu	Administration/Memory/Manual Config/MB Printer Mem
Purpose	Identifies the number of megabytes of RAM available to be split among the various memory clients.
Status Page Equivalent	Total Memory
Choices	000-999
Default	Depends on the amount of memory installed.
Notes	This memory client is not configurable. The size of this client's memory limits the number of jobs that may be queued simultaneously. When this client's memory is exhausted, the printer slows down, and the hosts are forced to wait. Since the printer uses a portion of the hard disk for memory swapping, the amount of memory displayed is larger than the actual amount of memory installed in the printer.

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Engine

Adjusting the Image Alignment

This option allows you to adjust the horizontal and vertical placement of printed images.

To check image alignment, print a standard status page (Print Status button). When the printer is placing images properly, the alignment angle bar in the lower-left corner of the status page is 0.5"/12.7 mm from the left and bottom edges of the page. If the angle bar is off, use the Administration/Engine/Image Alignment option to align the image horizontally and vertically in pixel increments (1/300" or 0.08 mm).

» **Note:** *Engine constraints may limit the accuracy of pixel alignment.*

Horizontal Offset

Menu	Administration/Engine/Image Alignment/Horiz Offset
Purpose	Adjusts the horizontal placement of the image on the page.
Choices	000-300 (0.00"/0 mm-1.00"/25.4 mm)
Default	100 (0.33"/.84 mm)
Notes	Values above 100 move the image to the right. Values below 100 move the image to the left.

Vertical Offset

Menu	Administration/Engine/Image Alignment/Vertical Offset
Purpose	Adjusts the vertical placement of the image on the page.
Choices	000-300 (0.00"-1.00")
Default	100 (0.33"/.84 mm)
Notes	Values above 100 move the image down. Values below 100 move the image up.

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Duplex H. Offset

Menu	Administration/Engine/Image Alignment/Duplex H. Offset
Purpose	Adjusts the vertical placement of the image on the back of the sheet.
Choices	000-300 (0.00"/0 mm-1.00"/25.4 mm)
Default	100 (0.33"/.84 mm)
Notes	Values above 100 move the image to the right. Values below 100 move the image to the left.

Duplex V. Offset

Menu	Administration/Engine/Image Alignment/Duplex V. Offset
Purpose	Adjusts the vertical placement of the image on the back of the sheet.
Choices	000-300 (0.00"-1.00")
Default	100 (0.33"/.84 mm)
Notes	Values above 100 move the image down. Values below 100 move the image up.

Setting Default Paper

The default paper size is used when the selected paper size is requested but the input tray is missing from the engine.

Menu	Administration/Engine/Default Paper
Purpose	The default paper size is used when the selected paper size is requested but the input tray is missing from the engine.
Choices	Letter, A4
Default	Letter

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Setting Inputbin *x* Name

These options are used to name the inputbins.

Menu	Administration/Engine/Inputbin *x* Name
Choices	Up to 16 alphanumeric characters
Default	Inputbin 1 “multipurpose” / Inputbin 2 “upper”/ Inputbin 3 "lower"/Inputbin 4 "envelope"/Inputbin 5 "optional5"/Inputbin 6 "optional6"/inputbin 7 "optional7"
Note	Inputbins 4, 5, 6, and 7 option appear only if the optional high-capacity input feeder (HCIF) and envelope feeder are installed.

Setting Outputbin *x* Name

These options are used to name the output bins.

Menu	Administration/Engine/Outputbin *x* Name
Choices	Up to 16 alphanumeric characters
Default	Outputbin 1 “upper”/ Outputbin 2 “face-up”/Outputbin 3 "top-stack"/ Outputbin 4 "center-stack"/Outputbin 5 "bottom-stack"
Note	Outputbin 2, 3, 4, and 5 appear only if the optional face-up tray or high-capacity output stacker are installed.

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Specifying Page Recovery Action

When a paper jam or other similar error occurs, the printer can reprint the job starting from the page on which the jam occurred.

Menu	Administration/Engine/Page Recovery
Purpose	Enables or disables page recovery.
Choices	On—Reprints a print job from the page on which the jam or error occurred. Off—Don't reprint a print job when a jam or error occurs.
Default	On

Setting Toner Low Action

You can configure the printer to stop or to continue printing when a `TONER LOW` error message is displayed in the message window.

Menu	Administration/Engine/Toner Low Act.
Choices	Continue—Continue printing when a `TONER LOW` message displays. Stop—Stop printing when a `TONER LOW` message displays.
Default	Continue

Setting Energy Conservation

The Energy Saver option specifies whether the printer changes to a low-power state (the engine remains on, but the fuser turns off) after the printer is inactive for a user-defined length of time.

Menu	Administration/Engine/Energy Saver
Purpose	Sets the length of inactivity before the printer changes to a low-power state (the engine remains on, but the fuser turns off).

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Choices	15 minutes, 30 minutes, 1 hour, 2 hours, 3 hours—Idle time before activation of low-power state. Off—Use normal power all of the time.
Default	1 hour
Notes	When a print job is received, the printer returns to normal power within 90 seconds.

Setting Toner Density

Print density is the amount of toner placed on each dot, making the print appear lighter or darker. The higher the density, the darker the print looks and the higher the contrast is on the page.

» **Note:** *If the print density is too light, make sure that the Administration/Engine/Print Quality/Normal option is turned on before making any adjustments. The Conserve Toner option saves toner by simulating draft-quality printing.*

Menu	Administration/Engine/Toner Density
Choices	1-7
Default	4

Rotate Simplex

Use Administration/Engine/Rotate Simplex to select rotate simplex.

Menu	Administration/Engine/Rotate Simplex
Choices	On, Off
Default	On

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Edge to Edge

Menu	Administration/Engine/Edge to Edge
Choices	Off, On
Default	On

Manual Feed Timeout

Menu	Administration/Engine/Man Feed Timeout
Choices	0-300
Default	60

Letterhead

Use Administration/Engine/Letterhead to select letterhead.

Menu	Administration/Engine/Letterhead
Choices	Off, On
Default	Off

Setting Default Resolution

This option sets the print engine's default resolution.

Menu	Administration/Engine/Def. Resolution
Purpose	Sets the default printer resolution.
Choices	300 dpi—300x300 dpi resolution 600 dpi—600x600 dpi resolution 1200 dpi—1200x600 dpi resolution or 1200 dpi—1200x1200 dpi resolution - optional with Multi-Res daughterboard

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Default	600 dpi
Notes	If you want the printer to use a lower default resolution when you restore defaults, set this option to your choice (and make any other necessary configuration settings), and then use the Administration/Miscellaneous/ Save Defaults menu to save your custom defaults.

Print Quality

The Print Quality option allows the printer to operate at a lower rate of toner consumption and extend the life of your toner bottles.

Menu	Administration/Engine/Print Quality
Choices	Normal—Normal toner use. Conserve Toner—Toner use is lowered. 600dpi Enhance—Optional when Multi-Res board is installed
Default	Normal

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Consumables

This group of menu configurations is necessary for performing certain maintenance procedures on your printer. You will need to access this menu whenever you have to add toner, developer, replace the fuser, replace the drum, and replace rollers.

▲ **Caution:** *Failure to configure the consumable menus when performing maintenance on your printer can result in poor printer performance or printer failure.*

300,000-Page Preventive Maintenance Service

Menu	Administration/Consumables/PM Service/300 K PM Service
Purpose	Allows you to specify that preventive maintenance has been performed on the printer after 300,000 pages have been printed.
Choices	No—Preventive maintenance hasn't been performed. Yes—Preventive maintenance has been performed.
Default	Yes
Notes	To access consumables usage information, press the Print Statistics button on the control panel to access the Print Statistics menu or use the printer web page. If this option is reset without performing preventive maintenance, the monitoring system will provide incorrect usage information.

Resetting All Consumables Statistics Counters

Menu	Administration/Consumables/Start Period
Purpose	Allows you to reset all counters for the user-defined consumables tracking period to 0.
Choices	No—Don't reset counters to 0 Yes—Reset counters to 0
Default	Yes

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Miscellaneous

The Miscellaneous submenu allows you to change printer configurations, such as defaults and message window language.

Save Defaults

Saving a Default Custom Configuration

This allows you to define and save configurations that are different from the printer's internal default settings.

Menu	Administration/Miscellaneous/Save Defaults
Purpose	Saves the current printer configuration as a custom default.
Choices	**Yes**—Save the current configuration settings as a custom default. **No**—Don't save the current configuration settings as a custom default.
Default	No
Notes	**You can save only one custom configuration;** however, you can change the saved configuration at any time.

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Restoring Defaults

If you need to cancel all of the configuration changes you have made, you can reset all of the configuration settings to their factory defaults or custom defaults.

Menu	Administration/Miscellaneous/Restore Defaults/Factory Defaults
Choices	Yes, No
Default	No
Notes	When you choose Yes, the printer automatically reboots. This process takes several minutes to complete.

Menu	Administration/Miscellaneous/Restore Defaults/Custom Defaults
Purpose	Reconfigures the printer by using the default custom configuration.
Choices	Yes, No
Default	No
Notes	To restore the saved defaults, access the menu item and select Yes. The printer automatically reboots.

Reboot System

You can use this selection to restart the printer without turning off the power switch. You would use this when you've made changes to the configuration and need to restart the printer before the new settings will be acknowledged.

Menu	Administration/Miscellaneous/Reboot System
Choices	Yes, No
Default	No

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New System Image

The system software in your printer is stored on the internal hard drive. This allows you to update the system software from the host computer.

Menu	Administration/Miscellaneous/New System Image
Choices	Yes, No
Default	No
Notes	The procedures for downloading a new system image are in chapter 5, "Troubleshooting Printer Problems," in the *Operations* guide.

Capture Printjob

This allows you to capture the next job received by the printer and store it to the printer's hard disk. To access the captured print job you must copy the file from the printer's memory system (memory includes the printer's hard disk). Use ftp or CrownAdmin to copy the captured file from

```
SYS:/USR/LOGFILE.DAT
```

Menu	Administration/Miscellaneous/Capture Printjob
Choices	Disable, Capture Nextjob, Del Capturedjob
Default	Disable
Notes	If the print job is larger than the available space on the hard disk, the job will be flushed. The captured print job will remain on the disk until it is deleted with the Del Capturedjob menu option or it is overwritten when another print job is captured. This option appears only if a hard disk is installed.

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Setting the Message Window Language

Status messages and configuration menus can be displayed in the message window in English, French, German, or Spanish.

Menu	Administration/Miscellaneous/Keypad Language
Choices	English, French, German, Spanish
Default	English
Notes	The printer must be restarted for changes to the Keypad Language menu to take effect. You can either let the printer restart automatically after you save the change and exit from the Configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer.

Clock Operations

This menu allows you to set the internal real-time clock and adjust its speed

Menu	Administration/Miscellaneous/Set Clock
Purpose	Allows you to set the printer's optional time-of-day clock
Choices	Current Value: *DAY ## MONTH* xx*xx hh*:*mm*:*ss* Enter Value:
Default	Current date and time
Example	11 OCT 2001 13:00:00 (MON)
Notes	This menu doesn't appear unless the optional time-of-day clock is installed.

Menu	Administration/Miscellaneous/Adjust Clock
Purpose	Allows you to adjust the speed of the printer's optional time-of-day clock.
Choices	-155 Sec/Month to +155 Sec/Month (in 5 second/month intervals)

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Default	0 Sec/Month
Notes	This menu doesn't appear unless the optional time-of-day clock is installed.

Disk Operations

Use the Administration/Disk Operations menu to format the internal hard disk or connected hard disks.

See the *Options* manual for more information on installing external hard disks.

▲ **Caution**: *If you connect to this printer an external hard disk you previously used with an earlier QMS Crown printer (QMS 1660E, QMS 1725E, QMS 2025, QMS 3225, magicolor 2, or magicolor 330), this QMS 3260/4032 Print System software release will automatically reorganize the files on the hard disk when the printer is turned back on again. (The printer release number is listed on both the start-up and the status page.) Once this reorganization is done, the files on the hard disk can no longer be accessed if the hard disk is reattached to an earlier QMS Crown printer.*

This reorganization process takes time. If, when you first turn the printer on after attaching a previously used hard disk, it does not come on line immediately, be patient. Interrupting the reorganization process could cause all files on the hard disk to be lost.

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Formatting a Hard Disk

Use the Administration/Disk Operations/Format Disk menu to format a hard disk.

Menu	Administration/Disk Operations/Format Disk
Choices	DSK1 - DSK7
Default	DSK7
Notes	DSK7 belongs to the internal hard disk. Do not format Dsk#7 unless you are troubleshooting a disk problem. See Chapter 5, “Troubleshooting Printer Problems,” in the *Operations* manual for more information. Refer to chapter 6, “Storage Devices,” in the *Options* manual for complete information on backing up data to a Jaz or Zip Drive and restoring data from a Jaz or Zip Drive. ▲ **Caution:** *The Kanji fonts are factory installed on a formatted hard disk drive. DO NOT reformat or initialize the QMS Kanji internal hard disk. Reformatting erases all data, fonts, and files on the disk.* ***Your warranty does not cover this error.***

Backing up a Hard Disk

Use the Administration/Disk Operations/Backup Hard Disk to back up a hard disk.

Menu	Administration/Disk Operations/Backup Hard Disk
Purpose	Allows you to back up all the files stored on a storage device
Choices	DSK# Full, DSK# Incremental
Default	DSK# Full
Notes	DSK7 is the internal hard disk.

Refer to chapter 6, “Storage Devices,” in the *Options* manual for complete information on backing up data to a Jaz or Zip Drive and restoring data from a Jaz or Zip Drive.

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Restore Disk

Menu	Administration/Disk Operations/Restore Disk/DSK#
Purpose	Allows you to restore a storage device from the backup you made using the Administration/Disk Operations/Backup Hard Disk menu.
Choices	All attached storage devices (DSK1–DSK7)
Default	DSK7
Notes	Refer to chapter 6, “Storage Devices,” in the *Options* manual for complete information on restoring hard disks.

Refer to chapter 6, “Storage Devices,” in the *Options* manual for complete information on backing up data to a Jaz or Zip Drive and restoring data from a Jaz or Zip Drive.

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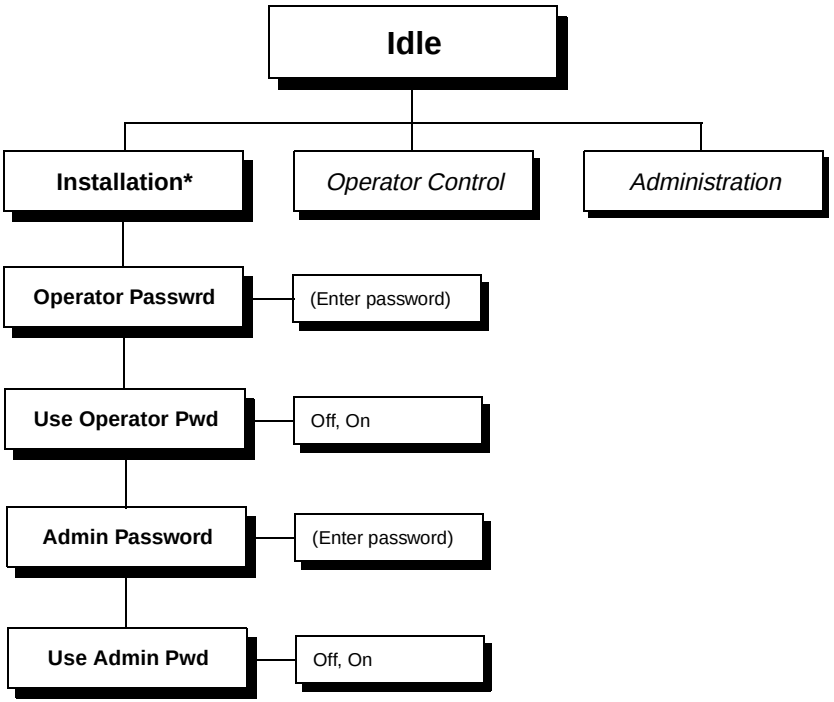
Installation Menu

The Installation menu appears only if a security key is installed. The system administrator uses the Installation menu to set passwords for the Operator Control and Administration menus.



**Optional*

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Selecting an Operator Menu Password

Menu	Installation/Operator Passwrd
Purpose	Allows you to enter a password for the Operator menu.
Choices	Up to 16 alphanumeric characters
Default	Blank (no password)
Notes	Enable the password in the Installation/Use Operator Pwd menu.

Enabling the Operator Menu Password

Menu	Installation/Use Operator Pwd
Purpose	Allows you to enable or disable the Operator menu password.
Choices	On—Requires a password to enter the Operator Control menu. Off—No password required to enter the Operator Control menu.
Default	Off
Notes	Enter the password in the Installation/Operator Passwrd menu.

Selecting an Administration Menu Password

Menu	Installation/Admin Password
Purpose	Allows you to enter a password for the Administration menu.
Choices	Up to 16 alphanumeric characters
Default	Blank (no password)
Notes	Enable the password in the Installation/Use Admin Pwd menu.

Enabling the Administration Menu Password

Menu	Installation/Use Admin Pwd

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Purpose	Allows you to enable or disable the Administration menu password.
Choices	On—Require a password to enter the Administration menu. Off—Don't require a password to enter the Administration menu.
Default	Off
Notes	Enter the password in the Installation/Admin Password menu.

Using Passwords

When a password is required to enter the Operator Control or Administration menu, the message window displays

```
ENTER PASSWORD
```

if you press the Select button to enter the menu. Enter the password or press the Menu button to return to the menu.

If you specify the correct password, access to the selected menu is granted. However, if you enter an invalid password, the message window flashes

```
INVALID PASSWORD
```

for three seconds and then returns you to the Configuration menu.

» **Note:** *Password protection from the menu does not prevent access from CrownAdmin if the CrownAdmin utility password is used.*

Configuring Optional Features

Several of the optional features available affect printer configuration and the Configuration menu. When an optional feature is installed, its configuration information merges into the Configuration menu. See the *Options* manual for more information.

❖

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3

Additional Technical Information

In This Chapter . . .

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- "Printer-Host Communication" on page 3-14
- "Memory" on page 3-15
- "Halftones" on page 3-29
- "End Job Mode" on page 3-30
- "Parallel Interface Modes" on page 3-37
- "PS Protocol Option" on page 3-39
- "HP-GL Color Encoding" on page 3-42

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Introduction

This chapter provides additional technical information on accounting, memory management, end job mode, the PS Protocol option, and HP-GL color-to-grayscale conversion.

Accounting

Crown accounting is a tool to help you keep track of printer resources. The printer collects information about each print job as it's printed. When each job completes, the printer stores an entry for the job in the job accounting file. With Crown accounting you can monitor the following:

- Paper use per user
- Time consumed serving each user's jobs
- Connectivity options
- Frequency of jams
- Times of peak use
- Number, complexity, and average size of jobs per user
- Commonly used features, such as duplexing or finishing

» **Note:** *A hard disk (internal or external) must be installed in the printer before you can use Crown accounting. A network connection is optional. However, if you're connected to a network via TCP/IP, you have the choice of using printer-based Crown accounting or the standard host-based TCP/IP accounting through your UNIX host software. See the* TCP/IP Protocol Option User's Guide *for more information on TCP/IP accounting.*

▲ **Caution***: Do not turn the printer off while the disk is being accessed. Doing so may cause inconsistencies in the information stored.*

Accounting Menu

Refer to chapter 2, "Printer Configuration," for accounting menu configuration information.

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Accounting Files

» **Note:** *You can also access these accounting files with the Windows-based QMS Crown Printer Auditor (CPA) utility on the QMS 3260/4032 Print System Software Utilities CD-ROM.*

The following accounting files are stored in ASCII format in the SYS:/ADMIN directory on the printer's hard disk.

- **Job Accounting File (ACC*x*.JOB)**

  This is the main accounting file. When each job completes, the printer stores an entry for the job in this file. The job accounting file may be a single file or multiple files, with *x* as the file number when multiple files are used. Information in this file is kept intact after the printer is turned off and back on again.

- **Paper Accounting File (ACC.PAP)**

  This file contains descriptions of the paper types supported on the QMS 3260/ 4032 Print System.

- **Status Accounting File (ACC.STA)**

  This file stores configuration information about accounting.

- **Dictionary File (ACC.DIC)**

  This file contains documentation about accounting and a description of the fields used in the other accounting files.

▲ ***Caution:*** *All the accounting files are stored in ASCII format to make it simpler to use the information in different environments after it is retrieved from the printer's hard disk.*

Copy Accounting Files to Host

Accounting files should be transferred to your host computer periodically to keep the printer from being overloaded with data and to allow for easy analysis of data.

Using the QMS Crown Printer Auditor (CPA) Utility

You can access the accounting files with the Windows-based QMS Crown Printer Auditor (CPA) utility on the QMS *Software Utilities* CD-ROM. Refer to the CPA on-line help for more information. CPA decodes accounting files and gives you the ability to export the files.

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Using the File Transfer Protocol (FTP)

» **Note:** *FTP works only when the printer is on line and the message window displays* `IDLE`*.*

Use File Transfer Protocol (ftp) on the host, if a TCP/IP connection is available to the printer, to copy the files from the printer's hard disk to the host as follows:

1 Type `ftp` *`printer-name`* (where *`printer-name`* is either the IP address of the printer or its corresponding host name).

2 If your printer has a CrownNet or a DECnet interface, follow these steps.

a When prompted for a user id, enter `admin` as the user name and give the appropriate password, if required.

b At the ftp> prompt, type `bin`↵ to use binary mode for the download procedure.

c Type

```
get SYS:/admin/acc1.job acc1.job↵
get SYS:/admin/acc.pap acc.pap↵
get SYS:/admin/acc.sta acc.sta↵
```

» **Note:** *If multiple Job Accounting files are used, each of the ACCx.JOB files should be copied. (x is the number of each subsequent Job Accounting file.)*

3 Exit ftp.

Type `quit`↵

Processing Accounting Information on the Host

After the accounting files are stored on your host, you can create your own filters (programs) based on your specific requirements using the file and record descriptions shown earlier in this chapter.

Accounting File Format Description

» **Note:** *Accounting files downloaded with Crown Printer Auditor (CPA) are automatically decoded. The following information applies to accounting files downloaded via FTP.*

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Accounting files are recorded in ASCII format in a series of tagged fields. New fields can be added without losing backward compatibility, because each field is tagged. A version field is included in the ACC.STA file to identify the supported fields as the system evolves.

» **Note:** *Field 45 in the Job Accounting File example on page 3-7 illustrates that new fields can be added to the series but used where logical, in this case between fields 6 and 7. Field 45, which provides information about the interface used, was added in response to a customer request.*

Conventions

The following conventions are the same for job, paper, and status files:

- **Tag Identifiers**

  These three-digit numbers are used to identify fields. The three-digit number is used instead of a name to minimize use of disk space. The Dictionary file (ACC.DIC) provides the field names associated with each tag identifier.

- **String information**

  String information for record field values is stored inside braces (for example, {this is a string}). This allows spaces within strings and stores only the necessary characters of a string value. String fields for which no value is specified are stored as {}, instead of using blanks or the maximum field size.

- **New records**

  New records are separated by a <CR> character to increase readability.

- **Separators**

  A typical record in any of the accounting files is a sequence of pairs of tag identifiers and field values separated by commas. The tag identifier and field value are separated by a colon.

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Example

The following is an example of the format of an accounting file record:

```
 1:  3,  2:{this is a string},  <CR>
```

In this example, the record has fields identified by tags 1 and 2. Since these values don't use 3 digits for the tag identifier, spaces are stored instead, to provide consistency and simplicity while using only a small amount of extra space. In this example, the value for the field tagged 1 is the integer 3 and the value for the field tagged 2 is a string. The <CR> represents the carriage return character.

Accounting Files Description of Fields

This section includes examples of a job accounting file, a paper accounting file, and a status accounting file. Each example is followed by a chart explaining the various fields, using data from the example to help clarify the fields.

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Job Accounting File Record Example

This is a sample record extracted from an actual job accounting file:

```
0: 6,  1: 1,  2:{ 8h 5m52},  3:{7/ 7/2000},   4:3,
5:{lsmith},  6:{}, 45:{ IF 1 Ethernet}, 7:{Microsoft Word -
WW6083WO.DOC}, 8:{}, 9: 2794, 10: 15414, 11: 1, 12:   0, 13:
2, 14: 3, 15: 0, 16:0, 17:  1, 18: 0, 19:  1, 46:   0,
47:      0, 48:    0, 49:    5,<CR> 50:     3, 51:     0,
52:     0, 53:     0, 54:     0, 55:     0, 20:3, 21: 2<CR>
```

Job Accounting File Record Description

The following table explains the record displayed above.

Field ID	Description	Example	Explanation
0:	The Job ID field is the document's number. The number sequence restarts whenever the printer is turned off and on again.	0: 6	This is the 6th job since the printer was restarted.
1:	This field is the document's internally assigned priority.	1:1	Priority 1, the highest, has been assigned to this job.
2:	If an time-of-day clock is installed, this field indicates the time a document arrived in the printer by hour, minute, and second. Otherwise, this field remains blank.	2: { 8h 5m52}	Printer received job at 8:05:52
3:	If an time-of-day clock is installed, this field indicates the date a document arrived in the printer. Otherwise, this field remains blank.	3: {7/ 7/2000}	Printer received job on July 7, 2000
4:	This field is the document's completion code: 0 User aborted document 1 Printer aborted document 2 Emulation aborted document 3 Successfully printed document	4: 3	Job printed successfully.
5:	The User Name field corresponds to the %%**For** DOC.	5: {hsmith}	H Smith sent job.
6:	The Host Name field corresponds to the **%%Host** DOC.	6: {}	No host name assigned.
45:	The Connection field indicates the I/O port in which the job arrived.	45:IF 1 Ethernet	This job arrived via Ethernet.

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7:	The File Name field corresponds to the **%%Title** DOC.	7: {Microsoft Word -WW6083WO.DOC}	QMS DOC was used to assign the title Microsoft Word - WW6083WO. DOC.
8:	The Charge Number field corresponds to the **%%Charge Number** DOC. This field identifies the account.	8: {}	No charge number assigned.
9:	The Compile Time field is the processor time in milliseconds ($^{1}/_{1000}$ second) spent translating the page description language. Typically, it also includes minimal other system activity.	9: 2794	Processor spent 2.794 seconds compiling the page.
10	The Print Time field represents the total elapsed time in milliseconds ($1/_{1000}$ second) used by the document since its first page started printing until its last page cleared the printer.	10: 15414	Job took 15.414 seconds from the start of the first page to the end of the last page.
11:	The Header Count field indicates how many images comprise the document header page(s) subjob. An image equals one page face.	11: 1	There is one header page.
12:	The Error Count field indicates how many images comprise the document error page(s) subjob. An image equals one page face.	12: 0	No error pages.
13:	The Body Count field represents the number of images in the actual document, excluding multiple copies. An image equals one page face.	13: 2	Two pages in the document.
14:	The Simplex Count field is number of the page faces printed, including body and header pages and taking into consideration multiple copies.	14: 3	Three page faces printed.
15:	The Duplex Count field represents the sheet count of duplex pages printed, taking into consideration multiple copies.	15: 0	No duplex pages.

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16:	The Finishing Options field is a number formed by adding the codes for the different options: 0 None 2 Offset Stacking	16: 0	No finishing options.
17:	The Chunk Count field represents the number of collated chunks for this job. If the complete document does not fit in memory, chunk collation is activated. A value of 1 for this field indicates no partial collation was necessary.	17: 1	Entire job printing in one collated unit.
18:	The Jam field indicates how many times the printer jammed while printing the document.	18: 0	No jams during this document.
19:	The Paper Types Count field indicates how many different types of paper were used in the document and represents the number of separate index entries that follow the main record for the document in the Job Accounting file.	19: 1	One type of paper used in this job.
46:	The Cyan Count is always 0 on monochrome printers.	46: 0	There is no cyan toner in the printable area.
47:	The Magenta Count is always 0 on monochrome printers.	47: 0	There is no magenta toner in the printable area.
48:	The Yellow Count is always 0 on monochrome printers.	48: 0	There is no yellow toner in the printable area.
49:	The Black Count field indicates the amount of toner (in square centimeters) used for the entire print job.	49: 5	There are 5 square centimeters of toner in the entire print job.
50:	The Monochrome Faces Count field displays the number of faces printed using the black toner.	50: 3	The printer has printed 3 faces using black toner.
51:	The Color Faces Count field displays the number of faces printed using cyan, magenta, and/or yellow toner. The face may also contain black along with the other color(s).	51: 0	Monochrome printers display a 0 in this field.

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52:	The Black Plane Count field displays the number of planes printed using black toner.	52: 0	Monochrome printers display a 0 in this field.
53:	The Cyan Plane Count field displays the number of planes printed using cyan toner.	53: 0	Monochrome printers display a 0 in this field.
54:	The Magenta Plane Count field displays the number of planes printed using magenta toner.	54: 0	Monochrome printers display a 0 in this field.
55:	The Yellow Plane Count field displays the number of planes printed using yellow toner.	55: 0	Monochrome printers display a 0 in this field.
20:	The Index Count field represents the number of sheets of paper of a specific type used by the document. The actual description of the paper is in the Paper Accounting file.	20: 3	Job used three sheets of paper.
21:	The Index field represents the record number in the Paper Accounting file that contains the description for the preceding paper count. A <CR> follows each occurrence of this field.	21: 2	A description of the paper type is in Paper Accounting file number 2.

Paper Accounting File Record Example

The following example shows a Paper Accounting file:

```
22: 8500, 23: 14000, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 8500, 23: 11000, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 8270, 23: 11690, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 7250, 23: 10500, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 8000, 23: 10000, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 6929, 23:  9842, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 7165, 23: 10118, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 8500, 23: 13000, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 8500, 23: 12402, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 8000, 23: 13000, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 3937, 23:  5827, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 4331, 23:  8661, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
22: 4125, 23:  9500, 24:  75, 25:{  white}, 26:{  plain}, 27:{   },
```


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Paper Accounting File Record Description

The Paper Accounting file has one record for each printer-supported media size. Field 21 refers to a specific record in the Paper Accounting file. In the example above, Field 21 indicates that the paper is of the second type.

Therefore, the second record from the Paper Accounting file describes the paper used. The second record tells you this:

Field ID	Description	Example	Explanation
22:	The Paper Width field contains the paper width in mils ($^{1}/_{1000}$").	22: 8500	The paper is 8500 mils or 8.5" wide.
23:	The Paper Height field contains the paper height in mils ($^{1}/_{1000}$").	23: 11000	Paper is 11000 mils or 11" high.
24:	The Paper Weight represents the weight per surface square units (g/m^2)	24: 75	Paper weighs 75 g/m^2.
25:	The Color field indicates the color of the paper.	25: white	Paper is white.
26:	The Type field indicates additional properties of the paper.	26: plain	Paper is plain.
27:	The Label field represents a name for the paper type.	27: { }	No paper type name.

» **Note:** *Fields 24, 25, 26, and 27 are designed primarily for future enhancements to the accounting capabilities.*

Status Accounting File Record Example

The following is an example of the Status Accounting file:

```
28:  2, 29: 13, 30: 1048576, 31: 1048576, 32: 74993, 33: 74993, 34:
1, 35:  1, 36: 309, 37:2, 38:1, 39:0, 40:0, 41:31, 42:23, 43:31,
44:31
```


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Status Accounting File Record Description

The following table explains the record displayed above.

Field ID	Description	Example	Explanation
28:	The Version field indicates the accounting file's version number.	28: 2	This is the second version.
29:	The Number of Paper Types field indicates how many records are in the Paper Accounting file.	29: 13	The paper accounting file has 13 records.
30:	The Job Accounting File Size field indicates how many bytes are dedicated to accounting files. Maximum is 10 MB.	30: 1048576	1048576 bytes, or 1 MB, is dedicated to accounting.
31:	The Last Job File Size field indicates the size of the last file. In the multiple-file configuration, each file is 1 MB except the last, which holds any remaining space.	31: 1048576	1048576 bytes, or 1 MB, is in the last file.
32:	The Job File Usage field indicates in bytes the total current use in all the job files.	32: 74993	All accounting files total 74993 bytes.
33:	The Current Job File Usage field indicates in bytes the current level of use in the current Job Accounting file.	33: 74993	The accounting file which is currently receiving data totals 74993 bytes.
34:	The Maximum Number of Job Files field indicates the maximum number of job files. For example, even if your system is configured for multiple files, if only 1 MB is dedicated to accounting, the maximum number of files is 1. If 5.5 MB is dedicated to accounting, the maximum number of files is 6.	34: 1	There can be only 1 job accounting file. Although the printer is configured for multiple files (see field 37) there is only one because only 1 MB is dedicated to accounting.
35:	The Current Job File field indicates which file has been used most recently. By comparing this with Field 33, you can determine which file is current and how much space is left in it.	35: 1	The most recently used file is File 1.
36:	The Number of Jobs field indicates how many documents are accounted for in the Job Accounting file(s). A value of 0 can mean that no jobs have been printed or that accounting is disabled.	36: 309	Current Job Accounting files hold data on 309 jobs.

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37:	The Multifile field has a value of 1 if a single file is used and a value of 2 if multiple files are used to store job information.	37: 2	Job Accounting is set for multiple files.
38:	The Enabled field indicates whether accounting is currently enabled or disabled. 1—Enabled 0—Disabled	38: 1	Accounting is currently enabled.
39:	The Job File Full flag indicates whether the Job Accounting file is full. 1 File is full; Resetaccounting should be performed 0 Job accounting file is not full	39: 0	Accounting files are not full.
40:	The Paper Accounting File Full flag indicates whether the Paper Accounting file is full. 1 File is full; Resetaccounting should be performed 0Job accounting file is not full	40: 0	The Paper Accounting file is not full.
41:	The User field indicates the maximum character length of the User Name field in the Job Accounting file. User names are assigned with QMS DOC.	41: 31	The User name can be up to 31 characters.
42:	The Host field indicates the maximum character length of the Host Name field in the Job Accounting file. Host names are assigned with QMS DOC.	42: 23	The Host name can be up to 23 characters.
43:	The File field indicates the maximum character length of the File Name field in the Job Accounting file. File names are assigned with QMS DOC.	43: 31	The File Name can be up to 31 characters
44:	The Charge field indicates the maximum character length of the Charge Number field in the Job Accounting file. Charge numbers are assigned with QMS DOC.	44: 31	The Charge field can be up to 31 characters

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Printer-Host Communication

Interface

An interface is the point at which two elements connect so they can work together. A printer-host interface is the way a printer connects to and works with a host (a microcomputer, workstation, minicomputer, mainframe computer, or network), and it involves both hardware and software. The way your printer interfaces with a host depends on many things, including computer type, computer ports available, interface cabling, application software, printer emulations, and printer drivers.

Simultaneous Interface Operation (SIO)

Simultaneous Interface Operation (SIO), a standard feature of QMS Crown architecture, enables your QMS printer to communicate simultaneously with hosts through the parallel, serial, Ethernet, and optional interface ports. In other words, SIO allows you to have more than one host communicating with the printer at one time.

ESP Technology

Emulation Sensing Processor (ESP) technology is another standard feature of QMS Crown architecture. ESP technology, which works with most popular commercially available applications, uses a form of artificial intelligence to analyze incoming file data and select the appropriate printer emulation (for example, PostScript emulation, HP-GL emulation, HP-PCL emulation, or another optional emulation) from those installed on the printer.

The print job is processed without your having to change printer switch settings or send software commands to accommodate different printer emulations.

When your printer is in ESP mode, you can easily print files prepared for a PostScript printer, an HP LaserJet, or an HP-GL plotter. The file prints correctly as long as it contains the traditional PostScript, PCL, or HP-GL commands for such items as page formats and job parameters (number of copies, page margins, fonts).

The QMS 3260/4032 Print System prints almost any file sent in a language ESP technology understands, whether you have one, two, or more hosts, and whether you are communicating through a parallel, Ethernet, serial, or other optional interface. Most users never have to change from ESP mode to another mode.

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Communication Modes

You can either allow your printer to operate in its default ESP mode or configure its ports to accept jobs in only a particular emulation mode (for example, PostScript emulation only, HP PCL only, or HP-GL emulation only). The default printer communication settings can be changed through the Configuration menu, which you access through the control panel—in the Administration/Communications menu, you can choose a default emulation for the parallel and serial interfaces, and in the Administration/Emulations menu, you can configure the printer defaults for each emulation mode. (The optional LocalTalk interface uses only PostScript.)

Advanced users can also use PostScript operators to reconfigure printer ports. Generally, it is best to keep your printer in ESP mode. Since ESP mode is the factory default, all you have to do to use it initially is connect your host to the printer and then send a file.

If you do want to reconfigure the interface ports for specific emulations (or if you need to return the printer to ESP mode), use the printer's control panel (the Administration/Communications menu). Configuring the printer through the control panel is described in chapter 2, "Printer Configuration," of this manual.

Memory

Memory allows your printer to store and retrieve information that's required when performing many of its tasks. The memory requirements of each printer are dictated by the applications to be run. Each printer comes standard with a certain amount of memory, but you can add more memory as necessary.

The memory is divided among users (or "clients"), each of which are allocated a specific amount (or "block") of memory. Each memory client is dedicated to a specific purpose. Your QMS 3260/4032 Print System allows you to distribute its memory among the various memory clients where it can best serve your specific printing needs. The following sections provide information on memory management so you can get the most from your printer.

Generally, there are two main reasons for wanting to reconfigure your printer's memory:

- To achieve maximum performance

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- To enable additional features

The ability to configure your printer's memory doesn't necessarily mean that you must change your current configuration. If you're presently using all the features you need and the printer is performing efficiently, you shouldn't feel compelled to reconfigure your printer's memory. Just remember that if your printing needs change, not only do you have the ability to increase the amount of printer memory, but you also can redistribute it to best meet your printing requirements.

QMS Memory Management

Managing the memory on your printer is much the same as managing your personal income. In money management, you have a certain amount of income and many ways of spending that income. You decide where that money goes according to what's important to you. There's no single correct way to manage money, but there is one best way for you according to your financial obligations. Just as long as your method works for you.

The same is true for managing the memory on your printer. There's no single correct way for everyone to allocate available printer memory. There is, however, a best way to configure your printer's memory for maximum efficiency in your specific printing environment. For example, if you use a large number of PostScript fonts of various point sizes, you may want to increase the amount of memory allocated to the area specified for PostScript fonts. Or you may want to increase memory to the area that minimizes slowdowns when collating large print jobs.

Memory configuration affects these things as well as the number of jobs that can be accepted by the printer, the number of options available simultaneously, the number of downloadable fonts and emulations that can be stored, and overall printer performance.

Memory Terms

Before you can configure your printer's memory efficiently, you must first understand the different types of memory and how they work together. Your QMS 3260/4032 Print System documentation uses the following memory terms:

Memory

Memory allows your printer to store and retrieve information. It's the space within your printer where information is stored while being processed.

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Memory Client

A memory client is a user of a block of memory dedicated to a specific function. Each memory client controls certain features. When insufficient memory is allocated to a specific client, the features it controls may not be accessible.

Excess Memory

Some printers designate one or two memory clients to receive all the excess, or unassigned memory. On your QMS 3260/4032 Print System excess memory is distributed among all the memory clients.

Storage

Storage is a device in (or on) which information can be kept. On QMS printers, there are three main types of storage—ROM, RAM, and hard disks. ROM stores read-only data, RAM represents temporary storage, and hard disks hold information on a more permanent basis (see the following definitions).

ROM (Read Only Memory)

This type of memory contains data and/or machine-executable instructions that can be read but not modified. This information is not lost when the printer's power is turned off.

RAM (Random Access Memory)

RAM is the memory your printer uses to perform each task. It can be written to and read from. Once a task is complete, the memory is free again to be used for another file. This memory is volatile, so if your printer loses power while a file is being sent, you must resend the file. The number and type of features you can run on your printer simultaneously depend on the amount of RAM you have and how that RAM is distributed. Your QMS 3260/4032 comes with either 16 or 32 MB of RAM, and it is upgradable to 384 MB by adding Single In-line Memory Modules (SIMMs).

Hard Disks

Hard disks are memory devices that are termed secondary storage (with respect to RAM which is termed primary storage). Hard disks are used as holding areas for data to be loaded into RAM and are also used as overflow areas for data too large to fit into available RAM. Any data undergoing a process by a microprocessor must reside in RAM. Any data waiting to be processed can reside on a hard disk, but must be transferred to RAM when required.

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When any available RAM cannot contain a large amount of data, some of that data can be placed on the hard disk. In this case, the memory used on a hard disk is referred to as “virtual memory.”

Examples of items placed on the hard disk in the QMS 3260/4032 are downloaded fonts, downloaded emulations, background print files, spooled print jobs, and operating systems.

RAM Disk

Also called a “virtual disk,” the RAM disk is an area of RAM that is used to simulate an additional hard disk. Data on a RAM disk can be written and read more quickly than on a hard disk, but a RAM disk loses any information stored on it when the printer's power is turned off. The spooling buffer is a RAM disk client if a hard disk is not available.

SCSI (Small Computer System Interface)

The printer’s optional SCSI port allows you to connect up to three optional SCSI hard disks or the optional CrownCopy scanner and up to two optional SCSI hard disks, providing storage for fonts, emulations, and other files. Hard disks are also used to increase the amount of collation that can be accepted and provide a secondary storage area for spooled data, while providing virtual memory capabilities.

IDE (Integrated Drive Electronics)

This applies to the internal hard disk. “Integrated” refers to the fact that all of the controller electronics are on the drive itself, so no separate adapter card or expansion slot is required.

Volatile Memory

This type of memory is cleared when the printer is turned off. For example, most RAM is volatile.

Non-volatile Memory

This type of memory is not lost when the printer loses power.

NV RAM (Non-Volatile RAM)

This protected form of RAM is used to store information such as your printer’s configuration menu. Configuration options you have chosen, such as emulations, memory

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settings, and input bins, are saved to this non-volatile RAM. This information is not lost when you turn off your printer.

Physical Memory

Physical memory refers to the amount of RAM installed in the printer.

Virtual Memory

Virtual memory extends the effective size of the printer's RAM by using a disk file or swap file to simulate additional memory space. It enables the hard disk to accept data swapped from RAM to free temporarily the RAM for other tasks.

Flash ROM

Quick loading, reprogrammable memory that holds information even when the printer is turned off is known as Flash ROM. Your QMS 3260/4032 Print System has Flash ROM available to hold system code. The chief advantage of Flash ROM is that system code upgrades can be loaded from your computer without the necessity of swapping out expensive EPROMS or having to place a service call.

Spool

Spooling is temporary storage to hold print jobs until the printer is available to process them.

Evaluation of Your Printing Environment

The first step in allocating your printer's memory is to define your printing needs. Each of your printer's features requires a minimum amount of memory. If you use a feature, you must allocate enough memory to the client which controls it. On the other hand, if there are features you don't use, you can take the memory in the clients that control the unused features and assign it to other clients that need additional memory.

Evaluation Questions

To get a better idea of what your printing requirements and your printer's capabilities are, answer the following questions. The memory client or menu option associated with each evaluation question is listed after the question.

1 How much RAM does your printer have (standard and additional memory)? *Total Memory*

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2 Do you have the option of installing additional memory if it's needed? *Total Memory*

3 Does your printer have any internal or external hard disks connected? If so, how many and what size? *Disk Cache*

4 Which resident emulations will you be running? *PS Heap or Emulation*

5 Will you be loading any nonresident emulations? If so, how many and which ones? *Emulation and Emulation Temp*

6 How many printer ports will be connected? *Host Input and Input Buffer*

7 Do you have an optional interface connected? *Input Buffer*

8 How many people will be using this printer simultaneously? *Host Input or K Mem for Spool*

9 How many downloadable fonts will you be using? What sizes? From which emulation? *Font Cache or Emulation Temp*

10 Will you use many different sizes of fonts/typefaces? *Font Cache*

11 How large are the files you typically print? How large is the largest file you'll be printing? *Host Input or K Mem for Spool*

12 Are most of your files text, or are any graphics intensive? *Display List*

13 Will you want to download fonts, forms, or operators to memory? *Font Cache or Emulation Temp*

14 Will you be collating documents? If so, how large and complex will these documents be? *Display List*

15 What media sizes will you be using? *Frame Buffer*

16 At which resolution will you be printing? *Frame Buffer*

17 Will you use ImageServer? *Emulations*, *Frame Buffer, or Display List*

After you have answered all of these questions, read the following sections to find out which memory clients control features you plan to use and which memory clients control features you don't need.

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Memory Clients

Memory clients are users of memory that are dedicated to a specific purpose. Each of the memory clients is located in the Administration/Memory menu. When you allocate memory to a specific client through the control panel, it's allocated in kilobytes (KB). Each time you make changes in the Administration/Memory menu, print out a status page to confirm the memory reallocation.

» **Note:** *The value for each memory client must be divisible by 4 KB. Therefore, if a value is entered that is not evenly divisible by 4 KB, it's automatically converted to the next lower value that's divisible by 4 KB. For example, if you enter 102 KB, the actual value is lowered to 100 KB, assuming there is enough memory available to allocate to this client. See the "Memory" section of chapter 2, "Printer Configuration," for each memory client's minimum and default settings.*

Memory clients in the QMS 3260/4032 are automatically allocated when the printer is installed or when you upgrade the printer's memory. There are other occasions when the printer's memory is automatically reallocated. These occur:

- When new system software is installed.
- When Quick Config is selected in the menu.
- When Disk Swap is enabled or disabled.
- When Frame Buffer is manually adjusted.
- When restoring printer defaults.

Remember, if you perform any of these functions the memory clients will be set to default values. The default values depend on the amount of physical memory installed in your printer and if you have a hard disk. The default allocation adjusts the Frame Buffer memory client first. It is set to the minimum values of physical memory needed for your print jobs, that is, paper size and resolution. The other memory clients are allocated memory from what is left over in physical memory.

Frame Buffer

The Frame Buffer memory client holds rasterized or bitmapped images of page faces which are ready to be sent to the print engine. A frame holds the contents of each single page image. For example, a 600 dpi monochrome page printed on letter-size media would consume Frame Buffer memory space as follows: (600 dpi x 600 dpi x 8.5 in x 11 in) /8 = 4,207,500 bytes or 4.1 MB.

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Because the Frame Buffer memory is so critical to the actual printing of a page, its allocation takes precedence over that of other memory clients. The number of frames needed to print at engine speed is engine specific and depends on the size media and resolution. For example, printing at 600x600 dpi requires four times the amount of memory in the frame buffer than printing at 300x300 dpi.

This table shows the minimum required memory for the Frame Buffer for various page sizes simplex or duplex. These values allow the printer to print at its rated speed. The minimum required memory for Frame Buffer will print correctly but may not print at the rated engine speed.

Media Size	300x300			600x600		
	Minimum	Simplex	Duplex	Minimum	Simplex	Duplex
Letter	1.5 MB	3 MB	4.5 MB	5 MB	10 MB	15 MB
Legal	1.5 MB	3 MB	4.5 MB	5.5 MB	11 MB	16.5 MB
A4	1 MB	3 MB	4.5 MB	5 MB	10 MB	15 MB
Exec.	1 MB	2 MB	3 MB	8 MB	8 MB	12 MB
Ledger	2.5 MB	5 MB	7.5 MB	9 MB	18 MB	27 MB
A3	2.5 MB	5 MB	7.5 MB	9 MB	18 MB	27 MB

Media Size	1200x600			1200x1200*		
	Minimum	Simplex	Duplex	Minimum	Simplex	Duplex
Letter	9 MB	18 MB	27 MB	17 MB	34 MB	51 MB
Legal	11 MB	22 MB	33 MB	21 MB	42 MB	63 MB
A4	9 MB	18 MB	27 MB	17 MB	34 MB	51 MB
Exec.	7 MB	14 MB	21 MB	14 MB	28 MB	42 MB
Ledger	17 MB	34 MB	51 MB	33 MB	66 MB	99 MB
A3	17 MB	34 MB	51 MB	34 MB	68 MB	102 MB

* optional

If you are uncertain about how to configure your printer's memory, use only the Administration/Memory/QuickConfig menu. This menu appears if your printer does not have a disk drive attached or if the disk swap option is disabled. Use this menu as a starting point before trying manually to configure your printer's memory. It provides a simple method of defining how much memory should go to each of the clients for the

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most complicated printing conditions in your environment. Menu options allow you to specify the largest media size at the resolution you plan to use. Memory is then automatically allocated to the clients.

Menu	Administration/Memory/Manual Config/K Mem Frame Buffer
Choices	02200-variable depending on options installed

Display List

Also known as K Mem Display, this client stores compressed representations, or blocks, of the pages to be printed. It takes approximately one compressed block for a normal 8.5" x 11" (215.9 mm x 279.4 mm) text page, four compressed blocks for an 8.5" x 11" (215.9 mm x 279.4 mm) page that includes some graphics, and as many as 500 compressed blocks for an extremely complex page.

Many pages of compressed blocks belonging to multiple print jobs can be stored at the same time in the display list. If enough memory is allocated to this memory client, a page can always be ready to print as soon as another page has been imaged to the print engine.

The amount of memory required for each compressed block is printer specific. The QMS 3260/4032 takes approximately 64 KB of memory from the display list for each compressed block. However, if a page includes raster image data (for example, bitmap data), each compressed block will require much more memory.

Increasing the amount of memory in this client may improve printing throughput and minimize slowdowns due to collating or printing complex pages. If your printer has a hard disk and the disk swap option is enabled, the memory added to this client is taken from virtual memory. If your printer does not have a hard drive then the memory added to this client is taken from the amount of physical memory in your printer. It may be necessary to reduce memory added to another client before adding memory to the Display List. Check that the Frame Buffer still has the minimum amount of memory needed for your printing needs before reallocating this memory.

PostScript Font Cache

Also known as K Mem PS Fonts and Font Cache, this memory client stores bitmapped representations of previously scaled PostScript fonts. This process reduces the number of times a font must be converted from outline form to bitmap form. Printing pages that have characters already stored in the font cache is immensely faster than printing characters not yet in the font cache.

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As the font cache memory fills, the printer makes room for new bitmapped characters by erasing those that have been in the cache longest without being used. By increasing the memory allocated to this client, the printer can store more characters and spend less time erasing and replacing characters in the cache. You should be careful when increasing the memory allocated to this client because the printer may spend more time searching the cache than it would scaling the character. This client has a limit to the maximum point size it will store.

Normally, you don't need to change this memory allocated to this client unless you use a large number of fonts at various point sizes. If you do, you may allocate additional memory to this client to improve printer performance.

There's no specific formula to use in figuring the amount of memory required by the font cache, but after a certain point, large font caches cause the printer to take longer to print than smaller font caches because of the search time through the cache. The recommended font cache size is in the following ranges:

- 128-256 KB for 300x300 dpi printing
- 256-512 KB for 600x600 dpi printing
- 384-512 KB for 1200x600 dpi and 1200x1200 dpi printing

You should experiment to see what font cache size works best for you.

PS Heap

Also known as K Mem PSHeap, Heap, PostScript VM, and Virtual Memory, this client holds downloaded fonts, PostScript operators, and forms.

Inefficiently coded PostScript jobs can consume an extremely large amount of virtual memory or leave objects in the PostScript heap after the print jobs are completed, leading to virtual memory errors. If enough memory is not allocated to the PS heap, the job cannot print.

Increasing the memory allocated to this client allows more complex jobs to print and increases the number of fonts that can be downloaded to virtual memory. However, this client should be increased only if you receive a virtual memory error when attempting to print a job or download a font, and even then it should be increased only in small increments until the error message goes away. Excess memory in the PS heap is not used.

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Emulation

Also known as K Mem Emulation, this client is used to store any optional or loadable emulations, such as LN03 Plus or QUIC II. Increasing this client's memory allows you to load more than one optional emulation so that it doesn't have to be reloaded every time the print job is sent.

If an emulation is loaded to process a print job and there is not enough memory in the emulation client, another emulation already loaded may be unloaded automatically to obtain enough memory. If you notice a delay in printing between jobs that have different nonresident emulations, it's possible that the emulations are having to reload each time they're run. Adding memory to the emulation client may eliminate the unloading and reloading of these emulations and, consequently, increase throughput. QMS recommends that you should add at least 1 MB of physical RAM to your printer and increase this memory client by 1 MB. If your printer has an optional hard disk and the disk swapping option is turned on then you can increase the emulation memory client using this memory.

» **Note:** *You should add at least 1 MB to the emulation memory client for each loadable emulation that your printer uses. Failure to add memory to this client may prevent the printer from loading and using the emulation. You should check the documentation accompanying your loadable emulation for information on additional resource requirements.*

Also increase the emulation client if you're printing complex non-PostScript jobs that may require more memory to process correctly.

Emulation Temporary

Also known as K Mem Emul Tmp, this client sets the amount of system memory to be used by non-PostScript emulations for storing downloaded fonts, forms, and macros. By dedicating a portion of memory to this client, your printer can perform "context switching," the ability to retain downloaded fonts and forms even after the printer changes from one emulation to another. Context switching prevents unnecessary repetitive downloading and traffic congestion on networks.

Normally, this memory client doesn't need to be changed unless you plan to download many different non-PostScript fonts.

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Spool Buffers

Also known as Host Input and K Mem for Spool, this memory client stores incoming data from all the interfaces until the emulation can process the print job. When enough memory is allocated to this client, the host becomes free more quickly, and the number of jobs that the printer can accept simultaneously is increased. You should consider the amount of data being sent simultaneously when allocating memory to the spool buffer. If available, a hard disk can supplement this client with additional memory needed for spooling. See the “Hard Disk Management” section later in this chapter.

» **Note:** *While increasing this client is beneficial in reducing network traffic, throughput is not necessarily increased. In addition, making this client too large could actually decrease throughput because of the overhead involved with managing a large spool.*

Disk Cache

This memory client stores frequently used data in system memory instead of continually storing and retrieving it from a hard disk. If a hard disk is used and a lot of disk access is required, adding memory to the disk cache may increase the printer’s performance.

For example, if many fonts are stored on disk, faster access to these fonts is achieved by increasing the disk cache size. Conversely, if no hard disk is used, the disk cache will automatically be set to 0 KB until a hard disk is installed and formatted. However, when one or more hard disks are installed and formatted, disk cache is automatically allocated 256 KB. Also, if there is more than 8 MB of memory installed, then 28 KB will be allocated to the Disk Cache client for any optional font SIMMs.

The disk cache is a high speed temporary buffer for data going to and from the hard disk. It can speed the printer in two ways:

- Information such as frequently referenced fonts and logos may still be in the cache and may not have to be pulled off a hard disk each time they’re needed.
- Information being written to a hard disk can be held in the cache temporarily until a more convenient time to be written to disk.

The amount of memory needed for the disk cache client is dependent on the size of the disk, the number of disks, the number of subdirectories on each disk, and the amount of memory dedicated to caching. As long as the disk cache is enabled and there is enough memory in the disk cache, all disks are accessible. If insufficient memory is allocated to the disk cache, some disks may be seen while others are not.

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The recommended amount of memory for the disk cache client for all disk drives is as follows:

- 45 KB internal usage
- 0.5 KB per MB of disk storage total for all disks
- 120 KB of memory dedicated to caching

For example, the recommended amount of memory for the disk cache for a single 120 MB hard disk would be 208 KB, and for two 120 MB hard disks it would be 268 KB.

MB Printer Mem

This field on the status page shows the size of the physical RAM installed in the printer. If a hard disk is installed and disk swapping is enabled (Administration/Memory/Manual Config/Enable Disk Swap), this field also gives the size of available virtual memory.

System Memory

Also known as System Use, this non-configurable client is the amount of RAM used to run the printer's operating system. It's never increased or decreased. The system memory subtracted from the total amount of RAM identifies the amount of RAM available for all the other memory clients.

Hard Disk Management

You can add one internal IDE hard disk (standard on QMS 3260/4032 EX model) and up to three optional SCSI hard disks, to your QMS 3260/4032 Print System. These hard disks serve as secondary storage places for such items as downloaded fonts, emulations, and spooled data.

» **Note:** *See FAQ 7181 for a list of each approved hard disk, its manufacturers and part numbers, and the QMS products on which it can be used. You can access QMS FAQs through the QMS SupportBase at http://www.qms.com/support/supportbase or through Q-FAX. See appendix A, "QMS Customer Support," to find out how to access Q-FAX documents. (FAQ numbers may be subject to change, so you may want to obtain a directory of Q-FAX documents before requesting a specific document.)*

Virtual Memory Support

When a hard disk is installed and disk swapping is enabled (Administration/Memory/Enable Disk Swap menu), your printer supports virtual memory capabilities for all

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memory clients except Disk Cache and Frame Buffer. These capabilities extend the amount of memory available for certain supported features, such as spooling and collation.

Specific Printing Environment Example

Since configuring memory is not an exact science, it may be helpful to see how others have allocated their printer memory to meet their printing needs best. The following example is to be used only as a example for configuring your own printer's memory.

Consider a QMS 3260/4032 Print System with 64 MB of RAM. As many as 10 people use this printer, sending text and graphics PostScript files to be printed on 8.5" x 11" (215.9 mm x 279.4 mm) media. The resolution for this printer is set at 600x600 dpi.

Memory Client	Memory Allocated
Host Input:	2056 KB
Display List:	17920 KB
Font Cache:	1024 KB
Heap:	4608 KB
Framebuffer:	25536 KB
Emulation:	3072 KB
Emulation Temporary:	3072 KB
Disk Cache:	28 KB
System Use:	1024 KB
Total Memory:	65536 KB
PostScript Emulation VM:	3561556
VM allocated:	102383
VM remaining:	3459173
Paper Size:	8.5" x 11"
Resolution:	600

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Halftones

The ability of the printer to produce halftones allows you to add scanned images or halftone graphics to your documents. This section will explain some of the options available on the QMS 3260/4032 for halftone printing.

What are Halftones?

Continuous tone scanned images have to be converted to dot pattern images on a laser printer. Laser printers, like printing presses, only have the ability to print patterns of dots controlled by turning on and off the laser. Because of the limited resolving power of the eye halftones appear as continuous tone images. For an example hold a newspaper photograph very close to your eyes to see the halftone dots.

Halftone characteristics can be changed by settings available on your QMS 3260/ 4032 Print System. The following factors can be used to adjust the halftone characteristics of your documents.

- Printer resolution
- Screen frequency and screen angles (Halftone types)

There can be some side effects to changing these factors. Factors such as the number of gray levels, printer performance, and scanned image quality can be affected.

Gray Levels

Gray levels are a progressive series of gray tones between black and white. Gray levels are produced by varying the ratio of black to white halftone dots. The number of gray levels depends on printer resolution and screen frequency.

Screen Frequency

Screen frequency or Lines Per Inch (LPI) is the number of lines of halftone dots that compose each inch of a halftone screen. The screen frequency determines the number of halftone dots used to represent gray levels in a given area.

The following formula shows the relationship between screen frequency, print resolution and gray levels. As the screen frequency increases, the number of gray levels decrease. If resolution is increased, the number of gray levels will also increase.

- gray levels = $(\text{resolution}/\text{screen frequency})^2 + 1$

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You can change screen frequency by selecting the halftone type in the QMS 3260/4032 configuration menu, through your application, or by using the PostScript **setscreen** operator.

The extra gray levels available through higher resolution provide a smoother shift from the darkest black to very light grays.

Screen Angle

A screen angle is the angle at which a halftone screen prints. The default screen angle for your QMS 3260/4032 Print System is 45° at 300x300, and 600x600. This is the normal angle for black and white printers. Selecting advanced halftone types menu option will vary the screen angle. You can also change the screen angle through the PostScript **setscreen** operator.

Halftone Types

Your printer provides three different options for halftones—basic, standard, and advanced. The number of gray levels increases by increasing the halftone type setting and the printer resolution.

» **Note:** *The default for this menu is Standard. The standard settings are optimized for performance. The advanced settings are optimized for quality.*

End Job Mode

When sending print jobs through the serial and parallel protocols, some applications and their printer drivers append an end-of-document command (EOD) to each print job to ensure that each file prints correctly. The reason for this is that some protocols and print queuing systems send print jobs to the printer as one continuous data stream (one print job immediately following another).

But the problem with this system is that some applications are limited by the printer language and are unable to produce an EOD command. This becomes even more problematic when you're printing to a QMS 3260/4032 Print System, where print jobs of all supported emulations can be received simultaneously. ESP technology examines the first part of each print job to determine its emulation. Once the emulation is identified, the print job processes without further checking. This minimizes any slowdown resulting from the sensing process. To help ESP technology determine the

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proper emulation of successive print jobs, the printer must be able to identify the end of job for each job.

Therefore, unless a wait timeout (the amount of time the printer is waiting on data from the host) occurs and ends each print job, or unless you add an EOD command between each file being printed through these protocols, some print jobs may be interpreted by the printer as one job and may “run” together. See chapter 2, “Printer Configuration,” for more information on emulation timeout.

When printing multiple jobs with little or no time delay and with no EOD command between each job, the serial and parallel protocols may be unable to detect an end of job automatically. So the End Job Mode feature on QMS Crown printers was designed to allow you to set the end of document for print jobs being sent through these protocols.

Common Reasons to Use End Job Mode

If you are printing via the serial and parallel protocols, and one of the following conditions exists, you may need to set the end job mode:

- Multiple print jobs with little or no time delay and with no EOD commands have been sent to the printer and the message window displays only one active job.
- Multiple print jobs of the same printer language have been sent to the printer and they print on the same page. (For example, you send the AUTOEXEC.BAT file with no EOD command followed with little or no time delay by the CONFIG.SYS file, and they both print on the same page.)
- Multiple print jobs of different printer languages “run” together as if they are a single print job. (For example, you send a PCL print job followed by a PostScript print job, and the PCL job prints and is followed by what appears to be program code instead of your PostScript print job.)
- You want to print multiple jobs with header pages.
- You want to print multiple jobs where job separation is important.

When your printer is in ESP mode, printing multiple jobs through the serial and parallel protocols and end job mode is not set, ESP technology interprets the emulation for only the first job. The print jobs that follow are interpreted as being the same emulation as the first job. For example, if there are two print jobs, the first a PCL file with no EOD command, and the second a PostScript file with a Ctrl-D (a PostScript end-of-file character)—ESP technology interprets the emulation of the first job correctly. But

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since the first print job has no EOD command, it “runs” into the second job, and even though the second job is PostScript, it prints in PCL.

Using the EOD Commands

Since the serial and parallel protocols may not be able to detect an EOD automatically, due to a lack of an EOD command in some printer languages, you can insert an EOD command at the end of your file to tell the printer where your print job ends. QMS Crown printers recognize three end-of-document commands: QMS EOD, HP EOD, and CTRL-D (for PostScript only).

These commands are functionally the same. They enable data stream sensing for the EOD command, allowing your host computer to control print job separation. The QMS EOD and the HP EOD commands perform an end of document for all of the printer emulations supported on your printer (PostScript, HP-GL, HP PCL, and Lineprinter).

See your system administrator or applications development department to have them identify the standard EOD command for your organization, or to have them select a standard EOD command.

Setting the End Job Mode for the Serial and Parallel Protocols

Your printer can be connected through the optional serial or parallel interface to a stand-alone computer, to a print server, or to some other type of print queuing system. This section provides a quick guide to the steps needed to set the end job mode for each environment. The following sections provide more detailed information for each step.

Stand-Alone Computer

1 **Set the end job mode from the printer's control panel.**

2 **Add the EOD command to your file.**

» **Note:** *If using steps 1 and 2 is not feasible in your stand-alone computer environment, you can alternatively use a program that either causes an emulation timeout or that inserts an EOD command between each print job. See your QMS vendor for more information on this type of program.*

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Print Server

1 **Set the end job mode from the printer's control panel.**

2 **Create a job separator to append an EOD command and send it between each print job.**

Other Print Queuing Systems

If you use a print queuing system other than a computer print server and you experience what appears to be an EOD command problem, you may need to use another procedure, such as a print utility, an initialization sequence, or a header page to add an EOD command. See your print queuing system documentation, your network administrator, or your QMS vendor for more information.

Setting the End Job Mode via the Control Panel

Use the following procedure to set the end job mode from the printer's control panel for printers connected via the serial or parallel interface to a stand-alone computer, a print server, or some other type of print queuing system:

» **Note:** *If you print both serial and parallel protocol jobs, then you must set the end job mode for each protocol.*

Wait for the printer to go idle, and then press the control panel keys in the order shown in the following instructions to access the End Job Mode option. The printer responds by displaying a status message in the message window.

» **Note:** *You may need to press the Next key more than once to advance through the list of selections or options.*

Key	Purpose	Message Window
Online	Turns off the Online indicator and readies the printer for configuration.	`IDLE`
Menu	Accesses the configuration menu.	`CONFIGURATION` `OPERATOR CONTROL`
Next	Advances to the Operator Control/ Administration menu.	`CONFIGURATION` `ADMINISTRATION`

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Key	Purpose	Message Window
Select	Accesses the Administration menu	ADMINISTRATION COMMUNICATIONS
Next	Advances to the Communications/ Parallel (or Serial) menu.	COMMUNICATIONS PARALLEL (or SERIAL)
Select	Accesses the Parallel (or Serial) menu.	PARALLEL/SERIAL MODE
Next	Advances to the Parallel (or Serial)/ End Job Mode menu.	PARALLEL/SERIAL END JOB MODE
Select	Accesses the End Job Mode menu.	END JOB MODE OPTION
Next	Advances to the appropriate option (QMS EOD, HP EOD, or None).	END JOB MODE OPTION
Select	Selects the option.	OPTION IS SELECTED
	Returns to the Parallel (or Serial)/End Job Mode menu.	PARALLEL/SERIAL END JOB MODE
Online	Asks you if you want to save your change.	SAVE CHANGES? NO
Next	Advances to the Yes option.	SAVE CHANGES? YES
Select	Saves your change and idles the printer.	IDLE
Online	Puts the printer back on line.	IDLE

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Adding an EOD Command to Your File

When adding an EOD command to your file, use the syntax for the selected EOD command exactly as written (the command's syntax is case sensitive).

» **Note:** *<ESC> represents the escape character. (The decimal value for the escape character is 027, and the hexadecimal value is 1B.) How you enter the escape character depends on your application. Some applications allow you to press and hold the ALT key and then type 027 to enter the escape character, while others allow you to type certain character sequences to represent the escape character. See your computer or application documentation to find out how to enter the escape character on your system.*

For this EOD command...	Use this syntax...
QMS EOD	%%EndOfDocument <CR><LF>
HP EOD	<ESC>%-12345X

» **Note:** *The <CR><LF> sequence following the %%EndOfDocument line for the QMS EOD is necessary to avoid an INPUT IDLE message remaining in the printer message window after the document finishes printing.*

When the QMS EOD or the HP EOD is set, the printer does not recognize the Ctrl-D EOD command. Add your organization's standard EOD command to the end of your print file, or add it to a separate file as follows.

Adding an EOD Command to the End of Your File

Create an output file (for example, print and ASCII, PCL, or PostScript file to disk) and add your organization's standard EOD command (QMS EOD or HP EOD) to the end of that file.

Sample output file:

```
Text
Text
Text
Text
%%EndOfDocument
```


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Adding an EOD Command to a Separate File

Create an ASCII text file that contains only the EOD command. For example, create a DOS batch file listing each print filename followed by the EOD command filename for each file being printed. Then “run” the batch file to print your list of files.

Sample DOS Batch File

Command	Explanation
Print mktg.doc	Job filename
Print end.txt	EOD command filename
Print acct.doc	Job filename
Print end.txt	EOD command filename

Creating a Network Job Separator

If your printer is connected to a network through a computer and the computer is acting as a print server managing the printing of shared network files, then your system administrator must create a job separator and associate it with a print job queue. Different network environments have different procedures for creating the job separator, such as initialization sequences, custom banner pages, print job headers, or print job trailers. The print server does not necessarily send multiple print jobs to the printer in the order that you queued them to the printer. The network job separator is accessed with each print job, so this ensures that network job separation is enforced. See QMS *Crown Network Notes* for more information on how to create a network job separator for several commonly used networks.

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Parallel Interface Modes

In addition to Centronics parallel communication, your printer's parallel interface provides IEEE 1284 bidirectional parallel communication, which supports five modes of operation. The printer automatically recognizes and uses the mode dictated by the host.

Byte Mode

Printer-host communication is done in bytes.The byte mode may be used by the host device in a DMA (Direct Memory Access) mode for more efficient operation.

When byte transfer is complete and there is no more data to transmit, the host may do one of the following:

- Terminate and return to the compatibility mode.
- Stay in the Host Busy, Data Not Available phase.
- Set Host Busy Low, putting the interface into the idle phase.

If there is additional data, the host may do one of the following:

- Set Host Busy Low, indicating that the host can accept additional data.
- Stay in the Host Busy, Data Not Available phase.
- Terminate and return to the compatibility mode.

Check your host documentation to see if the host is IEEE 1284 compatible.

Compatibility Mode

Printer-host communication is done in a manner that ensures compatibility.

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ECP (Enhanced Compatibility Port) Mode

This is an advanced version of byte mode which allows transfer of data in either direction without returning to the compatibility mode. The communication is a half-duplex channel with either device, the host or the printer, making a request for data transfer when there is available data. In the case of simultaneous requests for transfer, the printer always defers to the host.

EPP (Enhanced Parallel Port) Mode

Printer-host communication is done via asynchronous bidirectional eight-bit transfer. A return to compatibility mode is not required.

Nibble Mode

Printer-host communication is done in nibbles (four bits; one-half byte) with the low order nibble sent first. A transfer of two nibbles is required for each byte of information.

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PS Protocol Option

Your QMS 3260/4032 Print System supports PS Protocol, a protocol for communication between the printer and a host computer over the parallel, optional serial, and optional network interfaces. This binary communications protocol (BCP) allows any 8-bit binary value (0-255) to be treated as data, while allowing a few of the values to function as special control characters. When communicating 8-bit binary data in binary or binary fixed mode, the printer uses the quoting mechanism of the binary communications protocol to distinguish between the special control characters and print job binary data.

To differentiate data from the special control characters, any data that is the same as one of the following special control characters must be quoted.

ASCII Keyboard	ASCII Name	ASCII Hex	Control Function
^A	SOH	0x01	Quote data character
^C	ETX	0x03	Abort job and flush to end of file
^D	EOT	0x04	End-of-file marker
^E	ENQ	0x05	(Reserved for future use)
^Q	DC1	0x11	XON in XON/XOFF flow control
^S	DC3	0x13	XOFF in XON/XOFF flow control
T	DC4	0x14	Job status request
^\	FS	0x1C	(Reserved for future use)

A data byte is quoted by replacing it with a two-character sequence. The first character is a ^A (ASCII hex 0x01), and the second character is the character itself XORed with the ASCII value 0x40. For example, to send the value 0x14(^T) as data, send the two-character sequence 0x01 0x54 (^a T) instead. (ASCII “T” is the result of XORing ^T with 0x40).

This method of quoting guarantees that whenever the printer receives any of the eight control characters, the control function is intended regardless of whether the preceding character is a ^A. Any data byte not equal to one of the eight special control characters is transmitted by sending the data byte.

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For more information on BCP and quoting, see the *PostScript Language Reference Manual* (Adobe Systems, Inc., Reading, MA: Addison-Wesley, 1990, ISBN 0-201-18127-4), the "Adobe Serial and Parallel Communications Protocols Specification" (in *Adobe Developer Support.* Adobe Systems, Inc., February 14, 1992), and the "PostScript Language Reference Manual" (in *Supplement for Version 2011*, Adobe Systems, Inc., January 24, 1992).

Options

The following options are available in the PS Protocol menu.

» **Note:** *Remember that the serial interface is an option which must be purchased through your QMS vendor. See appendix A, "QMS Customer Support," for a list of locations and telephone numbers.*

Menu	Administration/Communications/*Interface*/PS Protocol	
Choices	**Name and Description**	**Interfaces**
	Normal—Enables standard, ASCII hex protocol. Data is sent and received in ASCII format. This mode is recommended if you do not print binary data. It was designed for data in the printable ASCII range. Print jobs can alter the PS protocol value through PostScript operators.	Parallel, Serial, Ethernet, Token-Ring, LocalTalk
	Normal Fixed—Enables standard, ASCII hex protocol. Print jobs cannot alter this value through PostScript operators.	Parallel, serial, Ethernet, Token-Ring, LocalTalk
	Binary—Enables binary communications protocol. Print jobs can alter this value through PostScript operators. Data in the printable ASCII range also prints).	Parallel, Serial, LocalTalk, Ethernet, Token-Ring
	Binary Fixed—Enables binary communications protocol. Print jobs can not alter this value through PostScript operators. Data in the printable ASCII range also prints.	Parallel, Serial, LocalTalk, Ethernet, Token-Ring

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	QBinary (Quoted Binary)—Enables binary communications protocol. Print jobs can alter this value through PostScript operators. Data in the printable ASCII range also prints. Use the special quoting mechanism for the special characters and ^D (EOF).	Ethernet, Token-Ring
	Qbinary (Quoted Binary) Fixed—Enables binary communications protocol. Print jobs cannot alter this value through PostScript operators. Data in the printable ASCII range also prints. Use the special quoting mechanism for the special characters and ^D (EOF).	Ethernet, Token-Ring
Default	Normal	
Notes	A data stream sent through the serial or parallel interface using Binary is treated the same as a data stream sent through an optional network interface using QBinary. However, a data stream sent through an optional network interface using QBinary is not treated the same as a data stream sent through the same interface using Binary.	

Advantages

The main advantage of using the Binary and Binary Fixed PS protocol modes when sending binary data is that these modes compress the data stream allowing your documents to be smaller so you can send smaller jobs to the printer. For example, some device drivers can format bit map images as binary data instead of as ASCII hex data.

Implementation

To implement PS protocol for sending binary data on your system you need a device driver available with some applications or operating systems, or you can alternatively use a program to read the data and write out the quoted characters. See your QMS vendor for any available information on device drivers or binary filter programs.

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HP-GL Color Encoding

The term “pen” in the HP-GL emulation refers to a logical pen (in other words, the current pen position) rather than to a physical pen on a plotter. A pen and pen color are selected to draw images. This emulation supports 8 pens and 8 pen colors.

Although your QMS 3260/4032 Print System is not a color printer, the pen colors can be converted to shades of gray. In that case, the default color mappings for the 8 pens are as follows:

Pen	Pen Color	Level of Gray
1	Black	100%
2	Black	100%
3	Red	70%
4	Green	41%
5	Blue	89%
6	Violet	59%
7	Orange	25.8%
8	Brown	50%

» **Note:** *The default color for both pen 1 and pen 2 is black. However, the pen width for these two pens is different. Pen 1 is 0.7 mm and pen 2 is 0.3 mm.*

The printer maps each pen to its assigned color, then converts the color to a grayscale using the National Television System Committee (NTSC) standard equation for encoding color. This equation converts a given set of CMYK values to grayscale. For the 8 pen colors assigned to pens 1 - 8, the printer uses the designated grayscale; for any other pen color, the printer uses the following equation:

$$[(C*0.3) + (M*0.59) + (Y*0.11) + K] \div 255$$

» **Note:** *This equation assumes that each grayscale is a byte value that ranges from 0 to 255 (100%). If the sum of the left-side (calculation in brackets) of the NTSC equation is greater than 255, then the sum is set equal to 255.*

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4

Print Media

In This Chapter . . .

- “Introduction” on page 4-2
- “Media Input Capacities” on page 4-2
- “Media Sizes and Imageable Areas” on page 4-3
- “Media Types and Weights” on page 4-6
- “Storing Media” on page 4-8

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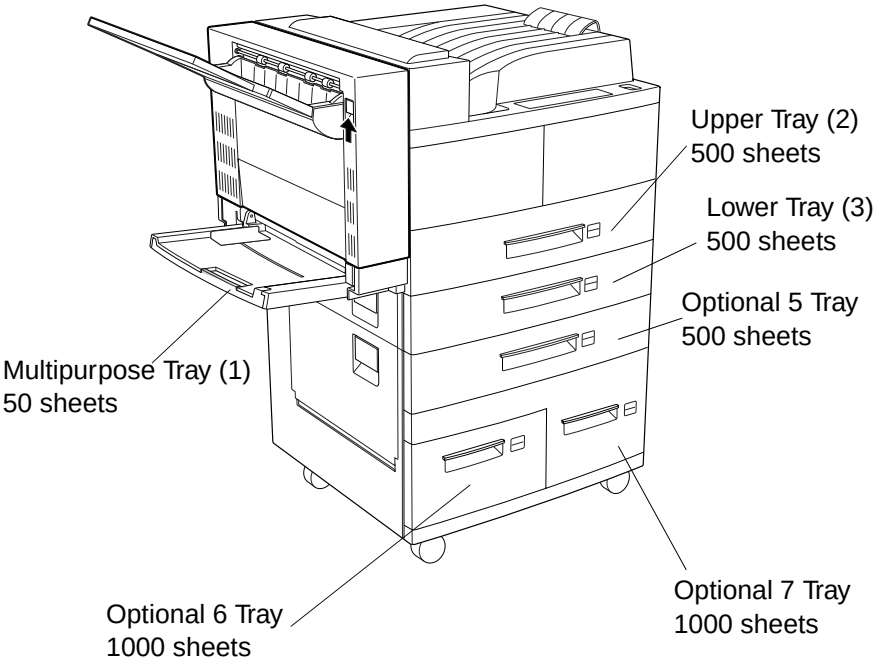
Introduction

This chapter lists the supported media sizes and imageable areas, and provides information on selecting and storing media.

Media Input Capacities



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Media Sizes and Imageable Areas

Your printer supports printing on several media sizes. Each media size has a certain imageable area, the maximum area on which the printer can print clearly and without distortion. This area is subject to both hardware limits (the physical media size and the margins required by the printer) and software constraints (the amount of memory available for the full-page frame buffer).

» **Note:** *The duplexer supports all media sizes except A6 and envelopes.*

Media	Media Size		Imageable Area***		Input Source/ Location
	Inches	Millimeters	Inches	Millimeters	
A3	16.5x11.7	420.0x297.0	16.2x11.4	412.0x289.0	1, 2, 3, 5
A4	8.3x11.7	210.0x297.0	7.95x11.4	202.0x289.0	1, 2, 3, 5, 6, 7
A5	5.8x8.3	148.0x210.0	5.5x7.95	140.0x202.0	1, 2
A6	4.1x5.8	105x148	3.8x5.5	97x140	1
B4	10.1x14.3	257.0x364.0	9.8x14.0	249.0x356.0	1, 2*, 3*, 5*
B5	7.2x10.1	182.0x257.0	6.9x9.8	174.0x249.0	1, 2*, 3*, 5*, 6*, 7*
C5 Envelope	6.4x9.0	162.0x229.0	6.1x8.7	154.0x221.0	1, 2, 3, 4, 5
Com 10	4.125x9.5	104.8x241.3	3.8x9.2	96.5x233.7	1, 2, 3, 4, 5
DL Envelope	4.3x8.7	110.0x220.0	4.0x8.3	102.0x212.0	1, 2, 3, 4, 5
Envelope	6.9x9.8	176.0x248.0	6.6x9.5	168.0x240.0	1, 2, 3, 4, 5
Executive	7.25x10.5	184.2x266.7	6.9x10.2	175.3x259.1	1, 2**, 3**, 5**, 6**, 7**
Folio	8.5x13	215.9x330.2	8.2x12.7	208.3x322.6	1, 2, 3, 5
Ledger	11.0x17.0	249.4x431.8	10.7x16.7	271.8x424.2	1, 2, 3, 5
Legal	8.5x14.0	215.9x355.7	8.2x13.7	208.3x348.0	1, 2**, 3**, 5**
Letter	8.5x11.0	125.9x279.4	8.2x10.7	208.3x271.8	1, 2, 3, 5, 6, 7
Monarch Envelope	3.875x7.5	98.7x190.5	3.6x7.2	91.4x182.9	1, 2, 3, 4, 5
DL Envelope	4.3x8.7	110.0x220.0	4.0x8.3	102.0x212.0	1, 2, 3, 4, 5
Statement	5.5x8.5	139.7x215.9	5.09x8.10	129.37x205.87	1, 2

Input Source/Location:
1 = Multipurpose tray (#1)
2 = Upper standard tray(#2)
3 = Lower standard tray(#3)
4 = Envelope feeder
5 =HCIF tray #5
6 =HCIF tray #6
7 =HCIF tray #7
*Kanji only
**Non-Kanji
***Edge-to-Edge disabled

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Working Within the Imageable Area

The imageable area for all media sizes is the page size minus 0.156"/4 mm from the top, bottom, left, and right edges. Edge-to-edge printing is possible on all supported paper sizes. When edge-to-edge is selected all media sizes have zero margins.

» **Note:** *The non-guaranteed print areas are areas on which you can print, but image quality in these areas may be less than perfect.*

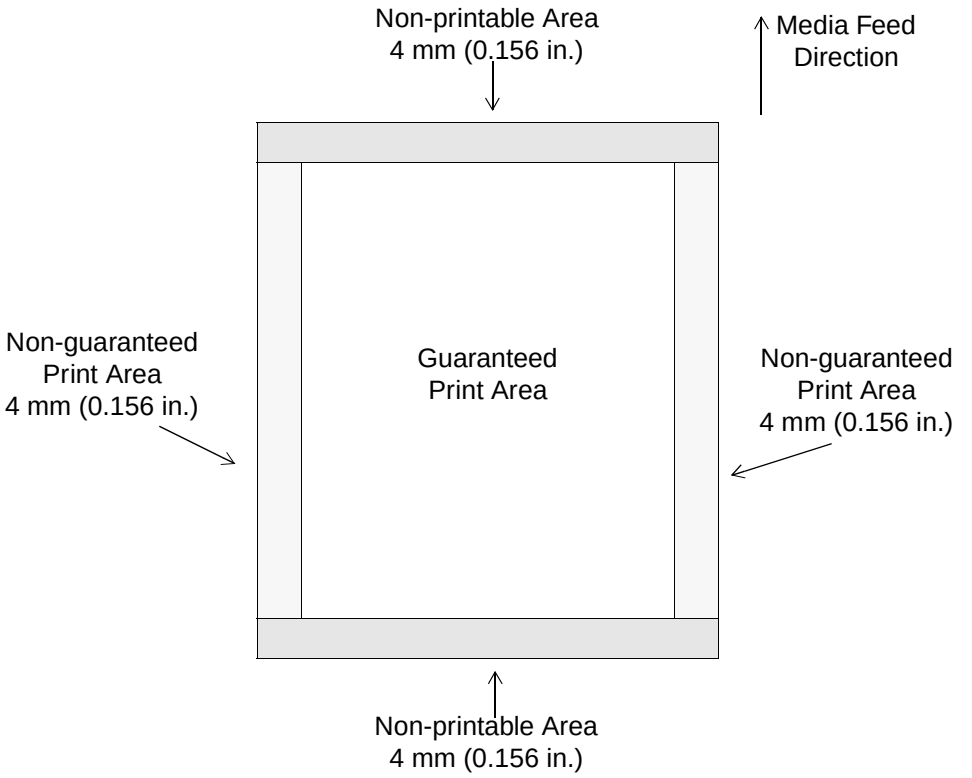

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Image Alignment

If for any reason, you need to change the image alignment, you can do so in several different ways:

- Adjust the margins or page size through your application.
- Use the printer's control panel (Administration/Engine/Image Alignment menu).
- Use the PostScript **translate** and **scale** operators to reduce image size and change its placement on the page.

Page Margins

Margins are set through your application. Some applications allow you to set custom page sizes and margins while others have only standard page sizes and margins from which to choose. If you choose a standard format, you may lose part of your image (due to imageable area constraints). If you can custom-size your page, use those sizes given for the imageable area for optimum results.

Media Size versus Tray Size

Ensure that the media size matches the tray size (for example, letter/A4 media must be loaded only when the tray is set to letter/A4 size). Since the tray sends a media size signal to the printer controller, using a wrong size media could cause a media jam, incorrect positioning of the image, or a clipped image. Also, see chapter 3, "Advanced Printing Features," in the *Operation* manual for information on the amount of memory needed to print on each media size.

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Media Types and Weights

Paper

Type

- Any standard or recycled office paper suitable for plain-paper laser printers, such as
  - Xerox 4024
  - Hammermill Laser Print
- Letterhead/memo paper
- Thick stock

» **Note:** *We do not recommend using perforated or 3-hole punched paper.*

Weight

- Long-grain plain paper, 17–28 lb (64–105 g/m^2)
- Long-grain thick stock, up to 70 lb cover/110 lb index (190 g/m^2)

» **Note:** *You should test any thick stock to ensure that its performance is acceptable.*

Envelopes

Type

- Use common office envelopes with diagonal joints, sharp folds and edges, and ordinary gummed flaps, such as
  - Monroe Brand Com#10
  - Monroe Brand Monarch
  - C5 (River Series #02067/Gummed)
  - DL (River Series #01029/Gummed)
- Envelopes may not have fasteners, clasps, transparent windows, peel-off strips for sealing, or material that will melt, vaporize, offset, discolor, or emit dangerous

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fumes at the fusing temperature (200° C/392° F). These items will seriously damage your printer.

Transparencies

Type

- Use any transparencies meeting normal photocopier standards and that can withstand the fusing temperature (200° C/392° F). We recommend
  - Xerox 3R2780
  - Xerox 3R96002
  - 3M PP2500
- Use only transparency sizes letter and A4.

Labels

Type

- Use only labels recommended for laser printers, such as
  - Xerox 3R4469
  - Xerox 3R97406
  - Xerox v860
  - Avery 5160/5260
- Adhesive label stock should have pressure-sensitive (peel and stick) adhesive backing.
- Use only label stock in sizes letter or A4.
- A label consists of a face sheet (the printing surface), adhesive, and a carrier sheet.
  - Face sheet must adhere to the plain paper specifications listed on page 6.
  - The face sheet surface must cover the entire carrier sheet, and no adhesive should come through on the surface.

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Postcard

Type

- Use postcards in the multipurpose tray only. We recommend
  - Japanese Official Postcard (190 g/m^2) or equivalent, excluding multicolor printing media.

Storing Media

How you store paper and other media can make a big difference in print quality and printer operation. Improperly stored media increases the chance of jams during printing and can drastically affect the appearance of your work. Keep media in good condition by storing it

- In its wrapper
- On a flat surface
- In a closed cabinet
- In a cool, dry area

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5

Fonts, Typefaces, and Symbol Sets

In This Chapter . . .

- "About Fonts and Typefaces" on page 5-2
- "Resident Fonts, Typefaces, and Symbol Sets" on page 5-6

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Introduction

This chapter defines common terms used in the description of fonts and typefaces, and displays the printer's resident typefaces.

About Fonts and Typefaces

Many of the terms and phrases used in desktop publishing are derived from the language of professional printers and typesetters. This section explains common words and phrases used when discussing typefaces.

Typeface	Typeface Family
A named design of a set of printed characters, such as Times, that has a specified obliqueness (degree of slant) and stroke weight (thickness of stroke). It does not define a particular size.	A group of similar typefaces. For example, the Times typeface family consists of four typefaces: Times Roman, **Times Bold**, *Times Italic*, and ***Times Bold Italic***.
Font	**Character Set**
A set of characters of the same typeface (such as Times), style (such as *italic*), stroke weight (such as **bold**), and point size (such as 10). Although you hear the term "font" used more generally, as if referring to a typeface, it's really a subset of a typeface.	A collection of symbols designed for various printing applications. Many character sets are composed of the letters (uppercase and lowercase A-Z), digits (0-9), and any symbol (such as blank space, dollar sign, and ampersand). Other character sets are composed entirely of symbols.

Typeface Classification

One way of classifying the different typefaces is to group them into the following categories:

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Serif

A serif is a decorative line or tail on the ends of the strokes of a letter. Serifs, usually on the lower half of a letter, have also been referred to as feet or curlicues. Courier, ITC Bookman, New Century Schoolbook, Palatino, and Times are serif typefaces. In the example shown, all the letters except “e” and “o” have serifs.

Times Roman

Sans Serif

Sans serif (“sans” is French for “without”) indicates a typeface without any of these small tails. A sans serif typeface is decorative by the shape and styling of its letters but has less detail than a serif typeface. Helvetica, Helvetica Condensed, Helvetica Narrow, and ITC Avant Garde Gothic are all sans serif typefaces. In the example shown above, the slight curving at the bottom of the letters “t” and “a” is not a serif. It is part of the line forming the letter rather than a decorative line added on.

Helvetica

Script

Script typefaces simulate handwriting or brush lettering. Each letter is connected visually, if not physically. ITC Zapf Chancery is a script typeface.

Zapf Chancery

Pi or Symbol

Pi or symbol typefaces are collections of assorted special-purpose characters (for example, decorative, graphic, math, or monetary characters). They are especially useful for highlighting items in lists, providing graphics, and displaying symbols that might otherwise have to be drawn in by hand. Many typefaces today include a complement of the more commonly used pi characters. Symbol and ITC Zapf Dingbats are pi typefaces.

Σψμβολ

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Typography Terms

Monospacing

The terms “monospaced” and “fixed-pitch” refer to a typeface whose characters all have uniform and equal spacing. These typefaces are useful for spreadsheets and other documents with columnar data. Monospacing is the opposite of proportional spacing.

Proportional Spacing

The term “proportionally spaced” refers to a typeface in which the width of each character varies. For example, the letter “i” is thinner than the letter “m” and therefore takes up less space. Proportional spacing saves page space and is easier on the eye. This manual’s text uses the Helvetica font, a proportionally-spaced typeface. Because proportionally spaced typefaces place each character according to its individual size, they increase legibility and readability. This example shows the difference between a monospaced typeface (Courier) and a proportionally spaced typeface (Times).

Bitmapped Font

A bitmapped font is one in which each character is represented by a set of dot patterns. Each font size requires a different set of dot patterns.

Scalable Font

A scalable font is one in which each character’s dot pattern (bitmap) is generated from a mathematical representation (or outline) of the character. Scalable fonts eliminate the need to store different font sizes.

Point Size

Point size refers to the height of a proportionally spaced typeface. A point is a unit of measure approximately equal to $^{1}/_{72}$". The larger the point size, the larger the letter. The example shows characters in 8, 10, 12, 24, and 36 point sizes.

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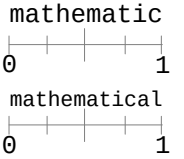
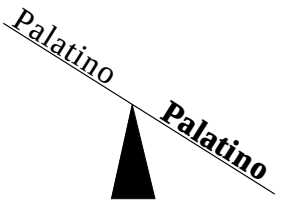
Pitch

Pitch refers to the number of characters per horizontal inch (cpi) in a monospaced typeface. Therefore, the larger the pitch, the smaller the letter. For example, a ten-pitch typeface prints ten characters per inch (or 10 cpi) while a twelve-pitch typeface prints twelve characters per inch (or 12 cpi). The example shows ten-pitch and twelve-pitch Courier.



Stroke Weight

Stoke weight (light/medium/bold) is the width (thickness), of the lines (strokes) that make up a character. The example at left shows the medium and bold weights of Palatino.



Italic and Oblique Forms

Italic was originally developed in the early sixteenth century as a typeface based on cursive handwriting. Today's italics are still individually crafted typefaces designed to blend with a specific roman (upright) typeface.

Times Roman

Times Italic

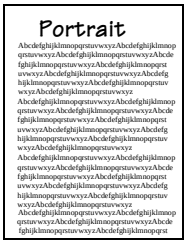
Oblique (or slanted) type forms, however, are not designed and crafted individually but are mechanically slanted versions of the roman form from which they derive.

ITC Avant Garde Roman

ITC Avant Garde

Orientation

Orientation is the direction of the print or image on a page. Portrait orientation reads from left to right, across the narrower dimension of the page. Landscape orientation also reads from left to right but places the print across the wider dimension of the page. Spreadsheet and table applications commonly use landscape printing. Both terms derive from painting; a portrait is usually a vertical view while a landscape is usually a horizontal view



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Resident Fonts, Typefaces, and Symbol Sets

Resident PostScript Fonts

Your printer has 42 resident PostScript fonts. Check with your QMS vendor for availability of additional fonts for your printer. See appendix A, “QMS Customer Support,” for a list of locations and telephone numbers.

Your printer supports Type 1 and Type 3 downloaded PostScript fonts. PostScript supports TrueType downloaded fonts only in Type 42 format. All of these typeface families are authentic: they are licensed, they carry the true name, and they have multilingual character sets. An example of each font is given in the following lists.

Font	Sans Serif	Serif	Script	Pi/ Symbol	Other
ITC Avant Garde	✓				
ITC Avant Garde Oblique	✓				
ITC Avant Garde Demi	✓				
ITC Avant Garde Demi Oblique	✓				
ITC Bookman Light		✓			
ITC Bookman Light Italic		✓			
ITC Bookman Demi		✓			
ITC Bookman Demi Italic		✓			
Courier		✓			
Courier Oblique		✓			
Courier Bold		✓			
Courier Bold Oblique		✓			
Helvetica	✓				
Helvetica Oblique	✓				
Helvetica Bold	✓				
Helvetica Bold Oblique	✓				
Helvetica Condensed	✓				
Helvetica Condensed Oblique	✓				
Helvetica Condensed Bold	✓				
Helvetica Condensed Bold Oblique	✓				

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Font	Sans Serif	Serif	Script	Pi/ Symbol	Other
Helvetica Narrow	✓				
Helvetica Narrow Oblique	✓				
Helvetica Narrow Bold	✓				
Helvetica Narrow Bold Oblique	✓				
New Century Schoolbook		✓			
New Century Schoolbook Italic		✓			
New Century Schoolbook Bold		✓			
New Century Schoolbook Bold Italic		✓			
OCR-B					✓
Palatino		✓			
Palatino Italic		✓			
Palatino Bold		✓			
Palatino Bold Italic		✓			
PC US ASCII					✓
PC US Multilingual					✓
Σψμβολ (Symbol)				✓	
Times Roman		✓			
Times Roman Italic		✓			
Times Roman Bold		✓			
Times Roman Bold Italic		✓			
ITC Zapf Chancery Medium Italic			✓		
✆♓■♍♌♋♦⬧ (ITC Zapf Dingbats)				✓	

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Resident HP PCL 5e Fonts

The QMS 3260/4032 Print System has 52 resident HP PCL 5e fonts, allowing it to emulate the HP 5Si. All fonts can be automatically rotated to landscape orientation.

Font	# of Symbol Sets	Scalable/ Bitmap	Selection Index	Sans Serif	Serif
Adobe Symbol Medium (1 symbol set)	32	S	4178		
Albertus Semi Bold	32	S	27103	✓	
Albertus Extra Bold	32	S	27106	✓	
Antique Olive Medium	32	S	25583	✓	
Antique Olive Italic Medium	32	S	26310	✓	
Antique Olive Bold	32	S	25582	✓	
Arial Medium	32	S	4186	✓	
Arial Bold	32	S	4185	✓	
Arial Italic Medium	32	S	4184	✓	
Arial Bold Italic	32	S	4183	✓	
Clarendon Condensed Bold	32	S	24734		✓
Coronet Italic Medium	32	S	24713		
Courier Medium	32	S	28414		✓
Courier Italic Medium	32	S	28415		✓
Courier Bold	32	S	28416		✓
Courier Bold Italic	32	S	28417		✓
Garamond (Stempel) Medium	32	S	26009		✓
Garamond (Stempel) Italic Medium	32	S	26010		✓
Garamond (Stempel) Bold	32	S	26011		✓
Garamond (Stempel) Italic Bold	32	S	26012		✓
ITC Zapf Dingbats	1	S	4148		
Letter Gothic Medium	32	S	28241	✓	
Letter Gothic Italic Medium	32	S	28242	✓	
Letter Gothic Bold	32	S	28243	✓	

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Font	# of Symbol Sets	Scalable/ Bitmap	Selection Index	Sans Serif	Serif
Line Printer Legal Medium 8.5 pt	25	B	4172	✓	
Line Printer PC-850 Medium 8.5 pt	25	B	4173	✓	
Line Printer PC-8 D/N Medium 8.5 pt	25	B	4174	✓	
Line Printer PC-8 Medium 8.5 pt	25	B	4175	✓	
Line Printer Roman-8 Medium 8.5 pt	25	B	4176	✓	
Line Printer ECMA-94 Latin (ISO8859/1) 8.5 pt	25	B	4177	✓	
Marigold	32	S	28537		
Omega Medium	32	S	26970	✓	
Omega Italic Medium	32		26971	✓	
Omega Italic Bold	32		26975	✓	
Omega Bold	32		26974	✓	
Times Medium	32	S	4182		✓
Times Italic Medium	32	S	4180		✓
Times Bold	32	S	4181		✓
Times Italic Bold	32	S	4179		✓
Times Roman Medium	32	S	26964		✓
Times Roman Italic Medium	32	S	26965		✓
Times Roman Bold	32	S	26968		✓
Times Roman Italic Bold	32	S	26969		✓
Univers Medium	32	S	28485	✓	
Univers Italic Medium	32	S	28486	✓	
Univers Bold	32	S	28487	✓	
Univers Italic Bold	32	S	28488	✓	
Univers Condensed Medium	32	S	28493	✓	
Univers Condensed Italic Medium	32	S	28503	✓	
Univers Condensed Bold	32	S	28494	✓	
Univers Condensed Italic Bold	32	S	28504	✓	
Wingdings	1	S	4187¸		

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PCL 5e Symbol Sets

This table lists all of the PCL 5e symbol sets that are supported on the QMS 3260/ 4032 Print System:

Desktop	PC - 850
ISO - 4 (UK)	PC - 852 (Latin 2)
ISO - 6 (ASCII)	PC - 8tk
ISO - 11 (SWED)	PC8 - US
ISO - 15 (ITAL)	PC8 - DN
ISO - 17 (SPAN)	PI - font
ISO - 21 (GERM)	PS - Math
ISO - 60 (NORW)	PS - Text
ISO - 69 (FREN)	Roman - 8
ISO - Latin - 1	Ventura - Intl
ISO - Latin - 2	Ventura - Math
ISO - Latin - 5	Ventura - US
Legal	Windows 3.0 (Latin 1)
MC - Text	Windows 3.1-1 (Latin 1)
Math - 8	Windows 3.1-2 (Latin 2)
Microsoft - Pub	Windows 3.1-5 (Latin 5)

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Resident HP-GL Fonts

Your QMS 3260/4032 Print System has the following 40 resident scalable HP-GL fonts in both fixed- and variable-spaced versions.

Set 0—Fixed space ANSI ASCII	Set 30—Fixed space ISO Swedish
Set 1—Fixed space 9825 Character Set	Set 31—Fixed space ISO Swedish for names
Set 2—Fixed space French/German	Set 32—Fixed space ISO Norway version 1
Set 3—Fixed space Scandinavian	Set 33—Fixed space ISO German
Set 4—Fixed space Spanish/Latin American	Set 34—Fixed space French
Set 5—Fixed space Special Symbols	Set 35—Fixed space United Kingdom
Set 6—Fixed space JIS ASCII	Set 36—Fixed space Italian
Set 7—Fixed space Roman extensions	Set 37—Fixed space Spanish
Set 8—Fixed space Katakana	Set 38—Fixed space Portuguese
Set 9—Fixed space ISO IRV	Set 39—Fixed space Norway version 2
Set 10—Variable space ANSI ASCII	Set 40—Variable space ISO Swedish
Set 11—Variable space 9825 Character set	Set 41—Variable space ISO Swedish for names
Set 12—Variable space French/German	Set 42—Variable space ISO Norway version 1
Set 13—Variable space Scandinavian	Set 43—Variable space German
Set 14—Variable space Spanish/Latin American	Set 44—Variable space French
Set 15—Variable space Special symbols	Set 45—Variable space United Kingdom
Set 16—Variable space ASCII	Set 46—Variable space Italian
Set 17—Variable space Roman extensions	Set 47—Variable space Spanish
Set 18—Variable space Katakana	Set 48—Variable space Portuguese
Set 19—Variable space ISO IRV	Set 49—Variable space Norway ver. 2

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A

QMS Customer Support

In This Appendix . . .

- "Sources of Support" on page A-2
- "QMS World-wide Offices" on page A-4

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Sources of Support

Several sources of help and information are available, depending on the type of help you need.

Your QMS Vendor

Your local vendor (the one from whom you bought the printer) may be best equipped to help you. Your vendor has specially trained service technicians available to answer questions, and the equipment to analyze your printer problems.

Your Application Vendor

Often, “printing” problems have more to do with the application being used than with the printer. In this case, the application manufacturer is the best source of help.

Q-FAX

Q-FAX, a QMS information retrieval service, provides application notes, technical support notes on common printing problems, and information about printer specifications, options, accessories, consumables, and prices.

In the United States and Canada, call (800) 633-7213 to reach Q-FAX. In all other countries, call (334) 633-3850. Have your fax number handy when you call (or place the call from your fax machine's handset).

You can choose to have either a directory (a list of currently available documents) or a specific document sent to you. The first time you call, request the directory (press 2 on your phone or fax keypad when prompted). Then call back to request specific documents. You can order up to three documents per call.

Internet

The QMS server provides access to technical reports, new product announcements, a trade show schedule, and other general information about QMS.

If you have access to the World Wide Web, you can view the QMS home page at http://www.qms.com/. The QMS ftp resource is ftp.qms.com.

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QMS Customer Response Center (CRC)

You can contact the QMS Customer Response Center (CRC) in three different ways:

- **Telephone**—You can call the CRC at (334) 633-4500 (US) Monday–Friday, 7:00 am–6:00 pm, Central Time.

» **Note:** *If you call for assistance, have the following information ready so our technicians can help you more quickly:*

  - ☑ Your phone number, fax number, and shipping address
  - ☑ A description of the problem
  - ☑ The printer model and serial number
  - ☑ The type of host computer you're using
  - ☑ The type and version of operating system you're using
  - ☑ The interface you're using, and, if serial, the protocol (for example, XON/XOFF)
  - ☑ The application and version you're using
  - ☑ The emulation you're using
  - ☑ Your printer firmware version (listed on the status/start-up pages)
  - ☑ A status page, if you can print one

- **Fax**—You can fax questions to the CRC at (334) 633-3716 (US). Provide the same information as listed above, and indicate whether you would like a faxed or a phoned reply.
- **Internet**—If you have access to the World Wide Web, you can access the CRC through the QMS home page at http://www.qms.com/

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QMS World-wide Offices

QMS United States and Latin America

General Contact
1 (334) 633-4300
Fax 1 (334) 633-4866
Email info@qms.com
Internet http://www.qms.com
Information on QMS products, supplies, and accessories, and on the authorized QMS remarketer or service provider nearest you
1 (800) 523-2696

Customer Response Center (CRC)
Technical Assistance
1 (334) 633-4500 7:00 am–6:00 pm Central Time
Fax 1 (334) 633-3716
Internet http://www.qms.com

Latin America Fax
1 (334) 639-3347

National Service
Service Information, Installation, and Maintenance Pricing
1 (800) 762-8894
On-Site Service and Depot Repair Information
1 (800) 858-1597 7:00 am–7:00 pm Central Time
Spare Parts Ordering and Information
1 (334) 633-4300 x2530 8:00 am–5:00 pm Central Time

QMS Canada

General Contact
1 (514) 340-0646
Fax 1 (514) 340-0401
Supplies and Accessories 1 (800) 268-0343 x223

National Service
On-Site Service and Depot Repair Information
1 (800) 268-4969 8:30 am–7:00 pm Eastern Time
Spare Parts Ordering and Information
1 (905) 206-9234 x238 8:30 am–5:00 pm Eastern Time

Bulletin Board Service
1 (905) 206-0084

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QMS in Japan

General Contact
(+81)-3 3779-9600
Fax (+81)-3 3779-9650
Internet http://www.qmsj.co.jp

QMS EMEA

QMS Australia	Anitech Sydney Business & Tech. Centre 52/2 Railway Parade 2141 Lidcombe NSW Australia (+61) 2–9901 3235 Fax (+61) 2–9901 3273 Internet http://www.qmsaus.com.au/
QMS Benelux **Belgium, Netherlands, and all unlisted countries**	Planetenbaan 60 'Corner Plaza' 3606 AK Maarssen The Netherlands (+31) 346–551333 Fax (+31) 346–550170 Internet http://www.qms.nl
QMS France	Vélizy Plus 1 Bis, Rue du Petit Clamart 78142 Vélizy Cedex France (+33) 1–410 79 393 Fax (+33) 1–408 30 110
QMS GmbH **Germany and Austria**	Gustav Heinemann Ring 212 D-81739 Munich Germany (+49) 89 63 02 67 0 Fax (+49) 89 63 02 67 67
QMS Italy	Via della Repubblica 56 43100 Parma Italy (+39) 52–1231 998 Fax (+39) 52–1232 902

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QMS Nordic **Sweden, Finland, Norway, and Denmark**	Arenavägen 41, 6th floor 121 77 Johanneshov Sweden (+46) 8–600 01 30 Fax (+46) 8–600 01 33
QMS South Africa	Saskay House Unit 24 Sunninghill Business Park Peltier Road, Sunninghill, Johannesburg Republic of South Africa (+27) 11–807 6957 Fax (+27) 11–807 6960
QMS UK **United Kingdom and Ireland**	Old Bridge House, The Hythe Staines, Middlesex TW18 3JF United Kingdom (+44) 1784–442255 Fax (+44) 1784–461641

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B

Technical Specifications

In This Chapter . . .

- "Printer Specifications" on page B-2
- "Media Sizes" on page B-8
- "PC Cable Pinouts" on page B-9
- "Regulatory" on page B-14
- "Warranty Considerations" on page B-15

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Printer Specifications

General

Printer type	Monochrome
Print method	Electro-reprographic system
Resolution	300x300, 600x600, 1200x600, 1200x1200(Optional)
Exposure	Semiconductor laser beam scanning system
Fusing	Thermal fusing by heated rollers
Toner cartridge	OPC (Organic Photo-Conductor) drum, developing roller and blade, primary charge roller, drum cleaner, and black toner
Toner cartridge life	23,000 pages (average) continuous running using Xerox 4024 8.5"x11" paper at 5% coverage with 4mm borders
Toner cartridge storage life	2 years from manufactured date with no condensation, 32° - 95° F(0° - 35° C)/ 15 - 85% relative humidity
Engine duty cycle	150.000 pages/month maximum (3260) 200.000 pages/month maximum (4032) 25,000 pages/month average
Warm-up time	60 seconds at room temperature

Consumable Life Expectancies

The stated life expectancy of each consumable is based on printing under specific operating conditions, such as media type, number of color planes, page size, and page coverage (usually 5% coverage of letter/A4-size media). The actual life expectancy will vary depending on these and other printing variables, including continuous or intermittent printing, ambient temperature, and humidity.

» **Note:** *Consumables for the QMS 3260/4032 Print System are available from your QMS vendor. See appendix A,* “QMS Customer Support,” *for a list of locations and telephone numbers.*

Pick-up rollers, Fuser unit, and Transfer roller	300,000 pages
Toner cartridge	23,000 pages (average) continuous running using Xerox 4024 8.5"x11" paper at 5% coverage with 4mm borders

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Engine Print Speed

	QMS 3260 Printer							
	Simplex pages per minute				Duplex Images per minute			
Tray #	**2, 3**	**5**	**6, 7**	**1**	**2, 3**	**5**	**6**	**7**
A3 (SEF)	16	16	16	16	14	13		
A4 (LEF)	32	32	32	32	31	28	23	19
A5 (LEF)	32	32	32	32				
B5 (LEF)	32	32	32	32				
B4 (SEF)				26				
Executive (LEF)	32	32	32					
Ledger (SEF)	16	16	16	16	14	13		
Legal (SEF)	20	20	20	19	15	15		
Letter (LEF)	32	32	32	26	31	28	23	19
Statement (LEF)	32	32	32					

SEF - Short Edge Feed LEF - Long Edge Feed

	QMS 4032 Printer								
	Simplex pages per minute					Duplex Images per minute			
Tray #	**2**	**3,5**	**6**	**7**	**1**	**2, 3**	**5**	**6**	**7**
A3 (SEF)	20	20			20	14	13		
A4 (LEF)	40	38	37	35	32	31	29	32	32
A5 (LEF)	40	38			32	31	28		
B5 (LEF)	40	38	37	35	32	31	29	32	32
B4 (SEF)	25	24			22	15	15		
Executive (LEF)	40	38	37	35	32	31	29	32	32
Ledger (SEF)	20	20			19	14	13		
Legal (SEF)	24	24			22	15	15		
Letter (LEF)	40	37	36	35	31	31	29	32	32
Statement (LEF)	40	37	36	35	26	31	28		
Envelopes					21				

SEF - Short Edge Feed LEF - Long Edge Feed

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Controller

CPU	NEC VR4310 RISC, operating at 150 MHz
Resident emulations	**PostScript**—Level 2 (300/600/1200 dpi) **PCL5e**—PCL5e/GL2 (HP 5Si compatible - 300/600dpi) **HP-GL**—7470 / 7475A / 7550 / Colorpro / Draftmaster (300/600/1200 dpi) **Lineprinter**—(300/600 dpi)
Optional emulations	CCITT (monochrome only; via QMS ImageServer) TIFF (monochrome only; via QMS ImageServer) CGM (monochrome only) LN03 Plus (300 dpi monochrome only) XES (monochrome only)
Fonts	**PostScript**—42 resident PostScript fonts that can be scaled from 4 points upward and rotated to any angle in 1° increments; all typefaces have multilingual character sets **PCL5e**—6 resident bitmap PCL5e fonts in 25 symbol sets, 16 resident scalable PCL5e fonts in 32 symbol sets, and 2 resident scalable PCL5e font in 1 symbol set, all of which can automatically be rotated to landscape orientation **HP-GL**—40 resident HP-GL symbol sets **Type 1 / Type 3 Support**—Support for Type 1 and Type 3 host-resident downloadable PostScript fonts **TrueType**—Support for Type 42 (PostScript format) host-resident downloadable TrueType fonts, support for TrueType fonts in PCL5e
Optional fonts	**SIMMs**—QMS Intellifonts, QMS ProCollection **Hard disk**—QMS Kanji Internal IDE Hard Disk
Standard interfaces	**CrownNet Ethernet**—10BaseT/100BaseTX **Parallel**—Centronics / IEEE 1284 bidirectional **Serial**—RS-232C
Optional interfaces	**Interface—**Support for one LocalTalk interface or one optional network interface (CrownNet Fast Ethernet, supporting EtherTalk, LAN Manager/ LAN Server, Netware, and TCP/IP; CrownNet Token-Ring, supporting LAN Manager/LAN Server, NetWare, and TCP/IP; or DECnet-TCP/IP) **SCSI interface—**Support for up to 3 external SCSI hard disks (up to 2.2 GB)/Jaz drives/Zip drives or up to 2 external SCSI hard disks.

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RAM	**Type:** 2 Khz refresh, 60 ns, 72 pin SIMM **Base model base system RAM:** 16 MB **EX model base system RAM:** 32 MB **Total RAM:** Upgradable to 384 MB (through 3 SIMM connectors)
Optional RAM	4, 8, 16, 32, 64, and 128 MB SIMMs » **Note:** *See FAQ 7191 for a list of approved SIMMs, their manufacturers and part numbers, and the QMS products on which they can be used. You can access QMS FAQs through the Internet at http://www.qms.com/support/supportbase/ or through Q-FAX. (See appendix A, "QMS Customer Support," to find out how to access Q-FAX documents).* *FAQ numbers are subject to change, so you may want to obtain a directory of Q-FAX documents before requesting a specific document.*
System software	Softloadable; stored in Flash ROM
Internal IDE hard disk	**Base model:** Optional, up to 2.2 GB **EX model:** Standard, up to 2.2 GB » **Note:** *See FAQ 7181 for a list of approved hard disks, their manufacturers and part numbers, and the QMS products on which they can be used. You can access QMS FAQs through the Internet at http://www.qms.com/support/supportbase/ or through Q-FAX. (See appendix A, "QMS Customer Support," to find out how to access Q-FAX documents).* *FAQ numbers are subject to change, so you may want to obtain a directory of Q-FAX documents before requesting a specific document.*
Time-of-day clock	**Base model:** Optional (socket provided for) **EX model:** Standard
Security key	Optional
Warning function	Optional, QMS BuzzBox Lite (light/buzzer printer warning device, port provided for)

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Electrical

	Voltage (V)	Frequency (Hz)	Average Power Consumption at warm-up and Printing	Rated Input current
100V version	100 +6%/-10%	50/60 +/- 3Hz	1180 W	9.5 A
120V version	127 +6% 120 -10%	50/60 +/- 3Hz	1180 W	9.5 A
220/240V version	240 +6% 220 -10%	50/60 +/- 3Hz	1243 W	5.2 A

Environmental

Noise level	**Printing:** 70.0 db **Standby:** 58.0 db
Relative humidity	**Operating:** 15-85% **Non-operating: 5-85%**
Temperature range	**Operating: 41-95° F / 5-35° C** **Non-operating: 41-95° F / 5-35° C**
Altitude	**Operating:** max 8,200’ (2500m) **Non-operating: 0-49,200 feet (0-15,000m)**
Inclination	**Operating:** 5mm front-to-back or left-to-right

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Weight

	Unpacked Weight	Packed Weight
Printer (including toner cartridge)	91 lbs / 41.1 kg	124.4 lbs / 56.4 kg
HCIF	72 lbs / 32.6 kg	90 lbs / 40.7 kg
Duplexer	11 lbs / 5 kg	17 lbs / 7.7 kg
HCOS	123.5 lbs / 56 kg	164 lbs / 74.3 kg
Envelope Feeder	6.91 lbs / 2.8 kg	9.5 lbs / 4.3 kg
Toner Cartridge	7 lbs / 3.2 kg	9 lbs / 4 kg

Dimensions

	Width	Depth	Height
Printer	25.3"/642mm	20.6"/523mm	19.1"/486mm
HCIF	20.5"/520mm	20.6"/523mm	16.8"/426mm
Duplexer	3.6"/92mm	19"/484mm	14.5"/369mm
HCOS	25"/633mm	26"/658mm	44.6"/1133mm
Envelope Feeder	11"/278mm	17.5"/444mm	5.2"/133mm
Face-Up Tray	13.4"/340mm	19"/484mm	9.1"/230mm

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Media Sizes

» **Note:** *The duplexer supports all paper sizes except A6.*

Media	Media Size		Imageable Area***		Input Source/ Location
	Inches	Millimeters	Inches	Millimeters	
A3	16.5x11.7	420.0x297.0	16.2x11.4	412.0x289.0	1, 2, 3, 5
A4	8.3x11.7	210.0x297.0	7.95x11.4	202.0x289.0	1, 2, 3, 5, 6, 7
A5	5.8x8.3	148.0x210.0	5.5x7.95	140.0x202.0	1, 2
A6	4.1x5.8	105x148	3.8x5.5	97x140	1
B4	10.1x14.3	257.0x364.0	9.8x14.0	249.0x356.0	1, 2*, 3*, 5*
B5	7.2x10.1	182.0x257.0	6.9x9.8	174.0x249.0	1, 2*, 3*, 5*, 6*, 7*
C5 Envelope	6.4x9.0	162.0x229.0	6.1x8.7	154.0x221.0	1, 2, 3, 4, 5
Com 10	4.125x9.5	104.8x241.3	3.8x9.2	96.5x233.7	1, 2, 3, 4, 5
DL Envelope	4.3x8.7	110.0x220.0	4.0x8.3	102.0x212.0	1, 2, 3, 4, 5
Envelope	6.9x9.8	176.0x248.0	6.6x9.5	168.0x240.0	1, 2, 3, 4, 5
Executive	7.25x10.5	184.2x266.7	6.9x10.2	175.3x259.1	1, 2**, 3**, 5**, 6**, 7**
Folio	8.5x13	215.9x330.2	8.2x12.7	208.3x322.6	1, 2, 3, 5
Ledger	11.0x17.0	249.4x431.8	10.7x16.7	271.8x424.2	1, 2, 3, 5
Legal	8.5x14.0	215.9x355.7	8.2x13.7	208.3x348.0	1, 2**, 3**, 5**
Letter	8.5x11.0	125.9x279.4	8.2x10.7	208.3x271.8	1, 2, 3, 5, 6, 7
Monarch Envelope	3.875x7.5	98.7x190.5	3.6x7.2	91.4x182.9	1, 2, 3, 4, 5
DL Envelope	4.3x8.7	110.0x220.0	4.0x8.3	102.0x212.0	1, 2, 3, 4, 5
Statement	5.5x8.5	139.7x215.9	5.09x8.10	129.37x205.87	1, 2

Input Source/Location:
1 = Multipurpose tray (#1)
2 = Upper standard tray(#2)
3 = Lower standard tray(#3)
4 = Envelope feeder
5 =HCIF tray #5
6 =HCIF tray #6
7 =HCIF tray #7
*Kanji only
**Non-Kanji
***Edge-to-Edge disabled

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PC Cable Pinouts

Centronics/IEEE 1284 Parallel

This table gives the pinouts for the printer end of the Centronics/IEEE 1284 parallel cable used to connect your printer to a computer.

Signal Pin No.	Signal Description	Direction
1	Strobe-	In
2	Data 1	InOut
3	Data 2	InOut
4	Data 3	InOut
5	Data 4	InOut
6	Data 5	InOut
7	Data 6	InOut
8	Data 7	InOut
9	Data 8	InOut
10	Acnlg-	Out
11	Busy+	Out
12	Pe+	Out
13	Select	Out
14	Autofeed	In
15	Reserved	-
16	Ground	-
17	Ground	-
18	Vcc Test	-
19-30	Ground	-
31	Iprime	In
32	Fault-	Out
33	Reserved	-
34	Reserved	-
35	Reserved	-
36	Selectin	In

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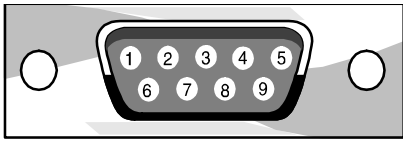
Notes to the Table

- **Direction** refers to the direction of signal flow as viewed from the printer.
- **Return** denotes “twisted-pair return” and is to be connected at signal-ground level. When wiring the interface, be sure to use a twisted-pair cable for each signal and never fail to complete connection on the return side. To prevent noise effectively, these cables should be shielded and connected to the chassis of the system unit and printer, respectively.
- All interface conditions are based on Transistor-Transistor Logic (TTL) level. Both the rise and fall times of each signal must be less than 0.2 microseconds.
- Data transfer must be carried out by recognizing the ACKNLG or BUSY signal.
- The cable must have an overall braided shield, Belden 8345 or equivalent.
- Connectors must have shielded housings. The overall shield must be bonded to the shielded housings at both ends of the cable.

Serial

This table gives the correct pinouts for the 9-pin male RS-232 serial interface.

Pin	Name	Pinout View from Printer Interface
1	Not Used	
2	Receive Data (RXD)	
3	Transmit Data (TXD)	
4	Data Terminal Ready (DTR)	
5	Signal Ground (GND)	
6	Data Set Ready (DSR)	
7	Ready To Send (RTS)	
8	Clear To Send (CTS)	
9	Reserved	

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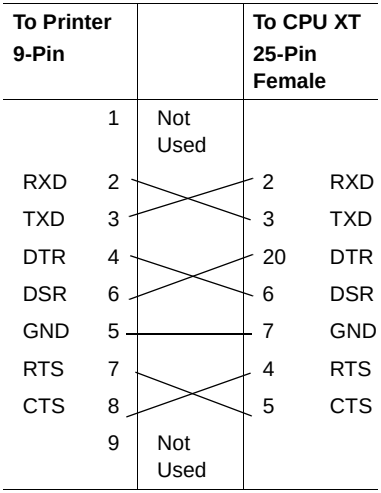
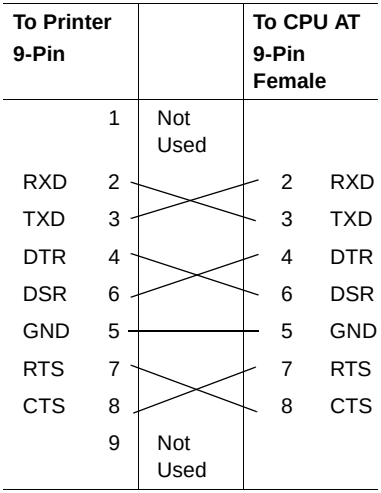
IBM PC/XT, PC/AT, and Compatible Computers

The following diagrams show the serial **cable** pinouts for IBM PC/XT, PC/AT, and compatible computers.

» **Note:** *Not all serial cables are configured as shown and may require a null-modem adapter. Check with your cable vendor for compatibility.*





» **Note:** *To download printer system software via the serial port, your hardware must have RTS and CTS support. Make sure that pins 4 and 5 on the 25-pin serial cable and pins 7 and 8 on the 9-pin serial cable are criss-crossed as shown in this diagram.*

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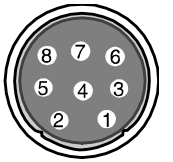
LocalTalk

The following table provides the pinouts for the printer's optional 8-pin LocalTalk interface:

Pin	Name	Looking into Printer Connector
1,2,7	Reserved	
3	Transmit Data - (TXD)	
4	Signal Ground (GND)	
5	Receive Data - (RXD)	
6	Transmit Data + (TXD)	
8	Receive Data + (RXD)	

Macintosh to Serial

The following table provides the pinouts for a cable connecting the Macintosh printer or modem port to the printer's serial port:

» **Note:** *To download printer system software from a Macintosh, you must have this type cable. Make sure pins 4 and 5 are crisscrossed as shown in this diagram.*

To Macintosh DIN-8 Male			To Printer DB-9 Female	
HandshakeOut	1		7	RTS
HandshakeIn	2		8	CTS
TXD-	3		3	TXD
RXD-	5		2	RXD
GND,RXD+	4,8*		5	GND
	6	Not Used		
	7	Not Used		

* Pins 4 and 8 must be connected together on the DIN-8 cable.

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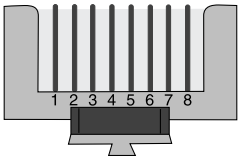
Ethernet

10BaseT/100BaseTX RJ45

The following table provides the pinouts for the 10BaseT/100BaseTX RJ45 Ethernet interface:

Pin	Name	Pinout View from Printer Interface
1	Transmit Data +	
2	Transmit Data -	
3	Receive Data +	
4	No Contact	
5	No Contact	
6	Receive Data -	
7	No Contact	
8	No Contact	

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Regulatory

CE Marking	International (EU) EN 55022:1994 (Class A ITE) EN 60950:1992 IEC 801-2 IEC 801-3 IEC 801-4	 Emissions Safety ESD Radiated susceptibility Fast transients
Electromagnetic Compatibility (EMC)	International (EU) IEC 801-2 IEC 801-3 IEC 801-4	 ESD Radiated susceptibility Fast transients
Electromagnetic Emissions (EMI)	Canadian ICES-003 EU (International) EN 55022:1994 FCC (USA) Title 47 CFR Ch. I, Part 15 VCCI (Japan) VCCI V-3	 Class A digital device Class A ITE Class A digital device Class A ITE
Power Consumption	Energy Star (USA). Operating 1,180 W maximum	Energy Star compliant (printer without advanced paper handling option.) Operating 1,180 W maximum
Product Safety	cUL (Canada) EU (International) UL (USA)	CAN/CSA C22.2 No. 950-95, Third Edition EN 60950:1992 UL 1950, Third Edition
Product Laser Safety	CDRH (USA) EU (International)	Title 21 CFR Ch. I, Subchapter J IEC 825/EN 60825

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Warranty Considerations

Various factors can affect a printer's warranty. Two important ones are consumables and electrostatic discharge. Read your printer warranty carefully, and then store it in a safe place.

» **Note:** *Don't return any merchandise to the manufacturer without calling for a return merchandise authorization (RMA) number. See appendix A, "QMS Customer Support," for the QMS Customer Service telephone number where you can obtain an RMA number.*

Consumables and Your Warranty

The use of non-QMS consumables and/or accessories alone does not affect either your warranty or any maintenance contract you may have purchased. However, if QMS printer failure or damage is found to be directly attributable to the use of non-QMS consumables and/or accessories, QMS will not repair the printer free of charge. In this case, standard time and material charges will be applied to service your printer for that particular failure or damage. QMS recommends that you use only QMS consumables and accessories to support your printer. For Information on QMS products, supplies, and accessories, and on the authorized QMS remarketer or service provider nearest you, in the US, call 1 (800) 523-2696. In all other countries, check appendix A, "QMS Customer Support," for the QMS office closest to you.

Electrostatic Discharge and Your Warranty

It's very important to protect the printer controller board and other printer circuit boards from electrostatic damage.

If an anti-static wrist strap is provided in your printer option kit, attach one end of it to your wrist and the other end to any convenient electrical ground. The bare metal chassis of equipment, such as on the back of a computer, is suitable if it is plugged in but **turned off**. **Never attach the wrist strap to any piece of equipment with an electrical current present.** Turn off all power switches first. Plastic, rubber, wood, painted metal surfaces, and telephones are not acceptable grounding points. The printer isn't an acceptable grounding point either because it must be unplugged before you perform this task.

If you don't have an anti-static wrist strap, discharge your body's static electric charge by touching a grounded surface before you handle any printer boards or com-

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ponents and before removing the controller board cover. If you must walk around before completing your task, discharge your body's static electric charge again before touching the printer controller board.

Incidental and consequential damages caused by not discharging electrostatic buildup can affect your printer warranty.

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C

Document Option Commands

In This Chapter . . .

- "Introduction" on page C-2
- "Supported QMS DOCs" on page C-2

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Introduction

This appendix lists the supported Document Option Commands (DOCs) for your QMS 3260/4032 Print System. The commands are grouped by feature type.

Each command is preceded by either a DOC statement (%%) or an IncludeFeature statement (%%IncludeFeature). See the QMS *ImageServer Developer's Kit User's Guide* for information on the CCITT commands. See the QMS *Crown Document Option Commands* manual for information all other commands.

Supported QMS DOCs

Header/Trailer Page Commands

Print charge number	%%ChargeNumber
Print copyright statement	%%CopyRight:
Print document creator	%%Creator:
Print creation date and time	%%CreationDate:
Print current date	%%Date:
End comments	%%EndComments
Print document owner	%%For:
Print document host	%%Host:
	%%Page
Select page order	%%PageOrder
Print routing information	%%Routing:
Print document title	%%Title:
Print version and revision	%%Version:
Print header page	%%IncludeFeature: header
Print trailer page	%%IncludeFeature: trailer

HP-GL Emulation Commands

Select enhanced resolution	%%IncludeFeature: enhanced
Expand plot	%%IncludeFeature: expand
Select original paper size	%%IncludeFeature: size
Select pen width and color	%%IncludeFeature: pen

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Select plotter	%%IncludeFeature: plotter
Scale the image	%%IncludeFeature: scaling
Set origin	%%IncludeFeature: origin

HP PCL 5e Emulation Commands

Install object	%%IncludeFeature: install
Remove object	%%IncludeFeature: remove
Remove resource	%%IncludeFeature: removeresource
Retain temporary	%%IncludeFeature: retaintemporary
Select default font	%%IncludeFeature: font
Select default font ID	%%IncludeFeature: fontid
Reset	%%IncludeFeature: reset
Select scalable fonts	%%IncludeFeature: scalablefonts
Select symbol set	%%IncludeFeature: symbolset
Set carriage return to CR+LF	%%IncludeFeature: criscrlf
Set linefeed to CR+LF	%%IncludeFeature: lfiscrlf
Set monochrome GL/2	%%IncludeFeature: monochromegl
Set number of lines per inch	%%IncludeFeature: linesperinch
Set point size	%%IncludeFeature: pointsize
Resource	%%IncludeFeature: resource

Lineprinter Emulation Commands

Select font for current job	%%IncludeFeature: font
Set point size for current job	%%IncludeFeature: pointsize
Specify character map type	%%IncludeFeature: map
Number lines	%%IncludeFeature: number
Set tabs	%%IncludeFeature: tabs
Set linefeed to CR+LF	%%IncludeFeature: lfiscrlf
Set carriage return to CR+LF	%%IncludeFeature: criscrlf
Set formfeed to CR+FF	%%IncludeFeature: ffiscrff
Wrap lines	%%IncludeFeature: autowrap
Set number of lines per page	%%IncludeFeature: linesperpage
Set margins	%%IncludeFeature: lpmargins
Set orientation	%%IncludeFeature: lporientation

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CCITT Groups 3 and 4 Commands

Start decompression	%%ImageData
Set encoded byte flag	%%EBAMode
Set end of block	%%BlockEnd
Set line end	%%LineEnd
Eject page	%%PageEnd
Set image position	%%ImagePosition
Invert image	%%InvertImage
Set dpi for image expansion	%%DPI
Set data compression	%%Compression
Reverse bits	%%BitReverse
End print job	%%JobEnd
Set image size	%%ImageSize
Set image rotation	%%Rotation
Set source image origin	%%SourceImageOrigin
Set source image position	%%SourceImagePosition

Document Formatting

Logical page orientation	%%IncludeFeature: pageorientation
Duplex print jobs	%%IncludeFeature: duplex
Number up printing	%%IncludeFeature: pagegrid
Offset logical page	%%IncludeFeature: pageoffsets
Print borders	%%IncludeFeature: border
Scale logical page	%%IncludeFeature: pagescaling
Booklet printing	%%IncludeFeature: booklet
Print background images	%%IncludeFeature: background
Set printer resolution	%%IncludeFeature: resolution
Print page range	%%IncludeFeature: pagerange
Collate print job	%%IncludeFeature: collate
Logical page size	%%IncludeFeature: pagesize
Select number of copies	%%IncludeFeature: numcopies
Select paper	%%IncludeFeature: input
Select orientation	%%IncludeFeature: orientation
Select emulation	%%IncludeFeature: emulation
Set staple mode	%%IncludeFeature: staple
Logical margins	%%IncludeFeature: margins
Select print mode	%%IncludeFeature: quality
Select output bins	%%IncludeFeature: output

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Select color separations	%%IncludeFeature: colorseparation

Job and Subjob Boundary Commands

Sessions (only via network interface)	
	%%Sessions
New layout command	%%IncludeFeature: newlayout
End of document	%%EndOfDocument
	<ESC>%-12345x

LN03 Commands

Identify product	%%IncludeFeature: product
Control line wrap	%%IncludeFeature: autowrap
Specify default paper size	%%IncludeFeature: paper_size
Control transformation point	%%IncludeFeature: paper_size_override
Adjust image horizontally	%%IncludeFeature: xorigin
Adjust image vertically	%%IncludeFeature: yorigin
Set power-up configuration	%%IncludeFeature: reset_override

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D

Notices

In This Chapter . . .

- “Manual Notice” on page D-2
- “FCC Compliance Statement” on page D-2
- “Canadian Users Notice” on page D-3
- “Laser Safety” on page D-3
- “International Notices” on page D-4
- “Colophon” on page D-4

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Manual Notice

QMS, Inc. reserves the right to make changes to this manual and to the equipment described herein without notice. Considerable effort has been made to ensure that this manual is free of inaccuracies and omissions. **However,** QMS**, Inc. makes no warranty of any kind including, but not limited to, any implied warranties of merchantability and fitness for a particular purpose with regard to this manual**. QMS, Inc. assumes no responsibility for, or liability for, errors contained in this manual or for incidental, special, or consequential damages arising out of the furnishing of this manual, or the use of this manual in operating the equipment, or in connection with the performance of the equipment when so operated.

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

» **Note:** *A shielded cable is required to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules.*

◆ **Caution**: *Any modifications or changes to this product not expressly approved in writing by the manufacturer responsible for compliance to Federal Regulations could void the user's authority to operate this product within the Laws and Regulations of the Federal Communications Commission.*

Canadian Users Notice

This Class A digital apparatus complies with the Canadian ICES-003.

Cet appareil numérique de la classe A est conforme á la norme NMB-003 du Canada.

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Laser Safety

This printer is certified as a Class 1 laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation.

Since radiation emitted inside the printer is completely confined within protective housings and external covers, the laser beam cannot escape from the machine during any phase of user operation.

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International Notices

Power Cord

The following power cord requirements are in effect for the 220v QMS 3260/4032 Print System.

Minimum 0.75 mm^2

Minimum H05 VV - F

- The male plug is certified in the country in which the equipment is to be installed, and the female plug is an IEC 320 connector.

» **Note:** *In compliance with UL guidelines, "The appliance inlet is considered to be the main disconnect device. A socket-outlet shall be installed near the equipment and shall be easily accessible."*

Electromagnetic Interference

WARNING! *This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.*

ACHTUNG! *Dies ist ein Klasse A Produkt. In geschlossenen Räumen kann dieses Produkt Interferenzen erzeugen. Bitte beachten Sie in diesem Fall entsprechende Vorsichtsmaßnahmen.*

Colophon

This manual was written and formatted in FrameMaker. The illustrations were created in Adobe Illustrator. Typefaces chosen are Benguiat, Courier, Tekton, and Helvetica.

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E

Configuration Menu

In This Chapter . . .

- “Menu Chart Conventions” on page E-2
- “Operator Control Menu” on page E-3
- “Administration Menu” on page E-4
- “Installation Menu” on page E-10

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Introduction

Use this chapter as a quick reference for understanding and navigating the printer's configuration menu. The following menu charts are provided:

- **Operator Control menu** on page 3
- **Administration menu** on page 4
- **Installation menu** on page 10

Menu Chart Conventions

The following conventions are used in the menu charts:

- Some menu choices are marked as optional or with a *, indicating that the selection appears in the menu only when the option is installed.
- These charts show only the top-level menus. See chapter 2, "Printer Configuration," in *Reference* for detailed information on menu options.

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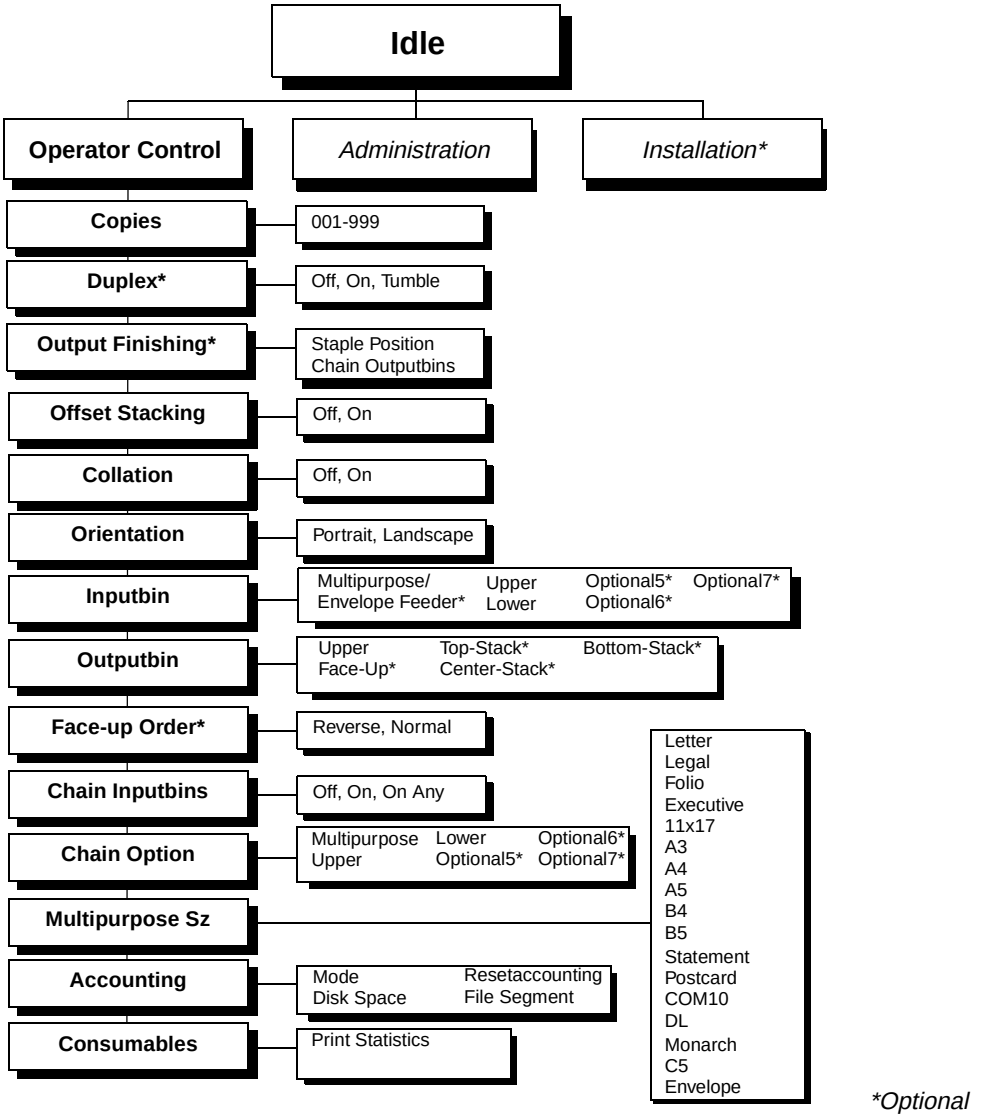
Operator Control Menu



**Optional*

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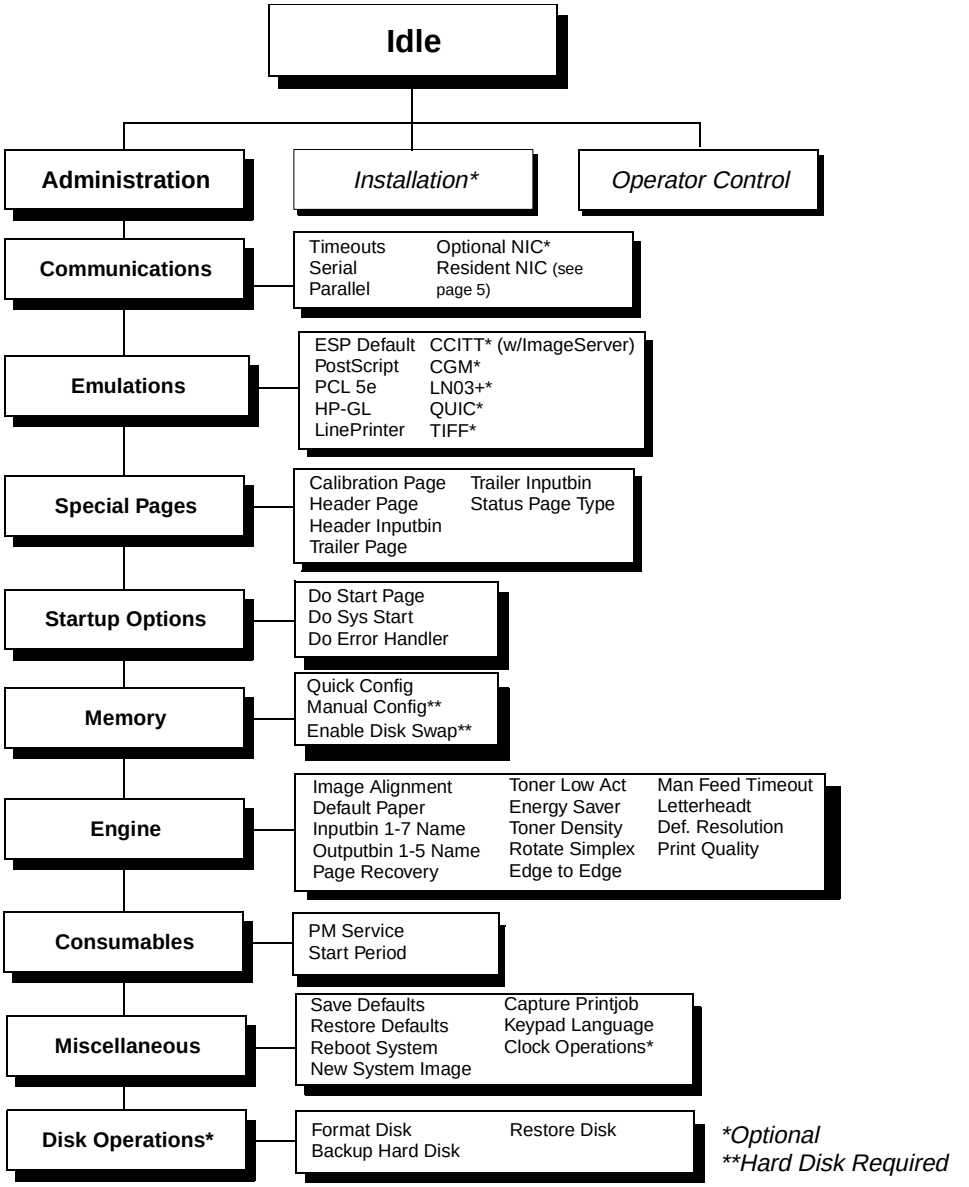
Administration Menu



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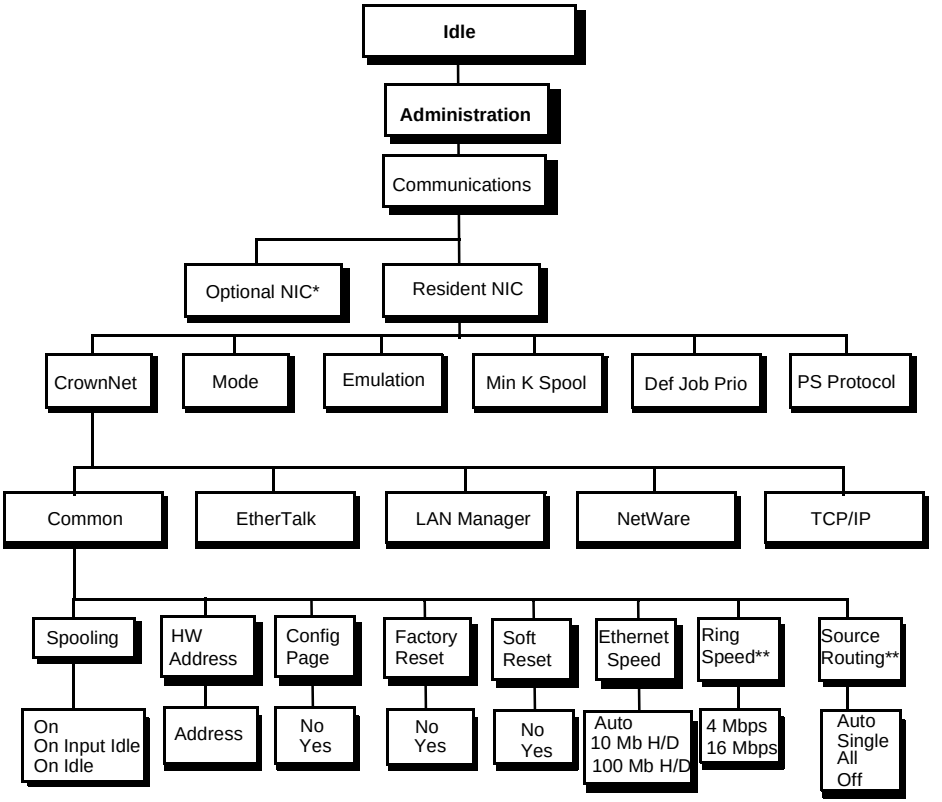
Administration/Communications/Resident NIC/CrownNet Menu

Common Menu



***Optional Token Ring*
**Optional*

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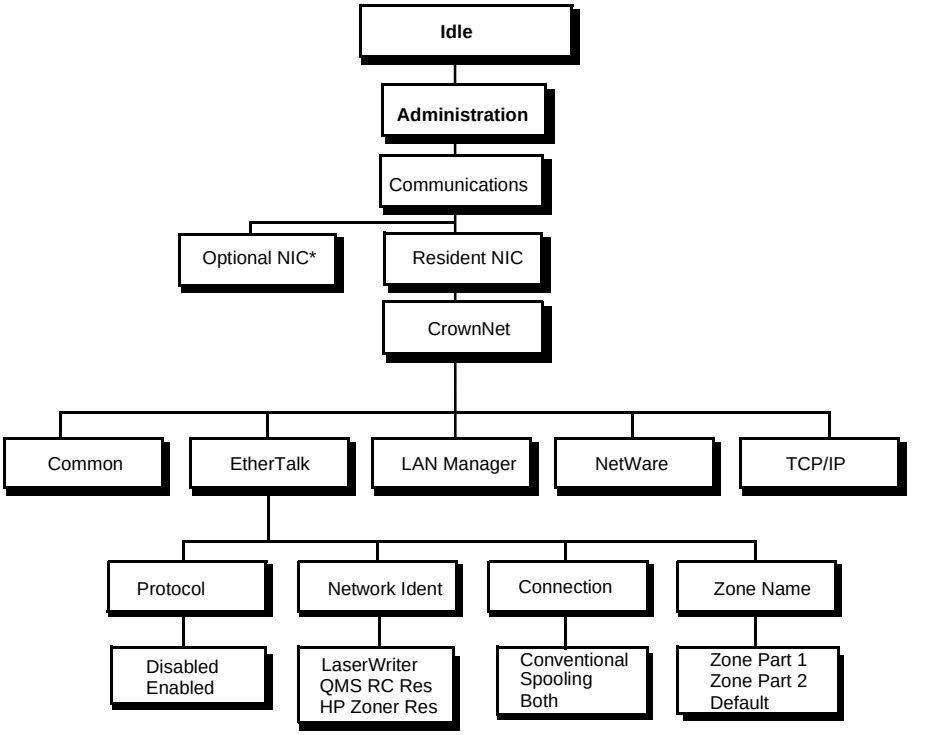
EtherTalk Menu



**Optional*

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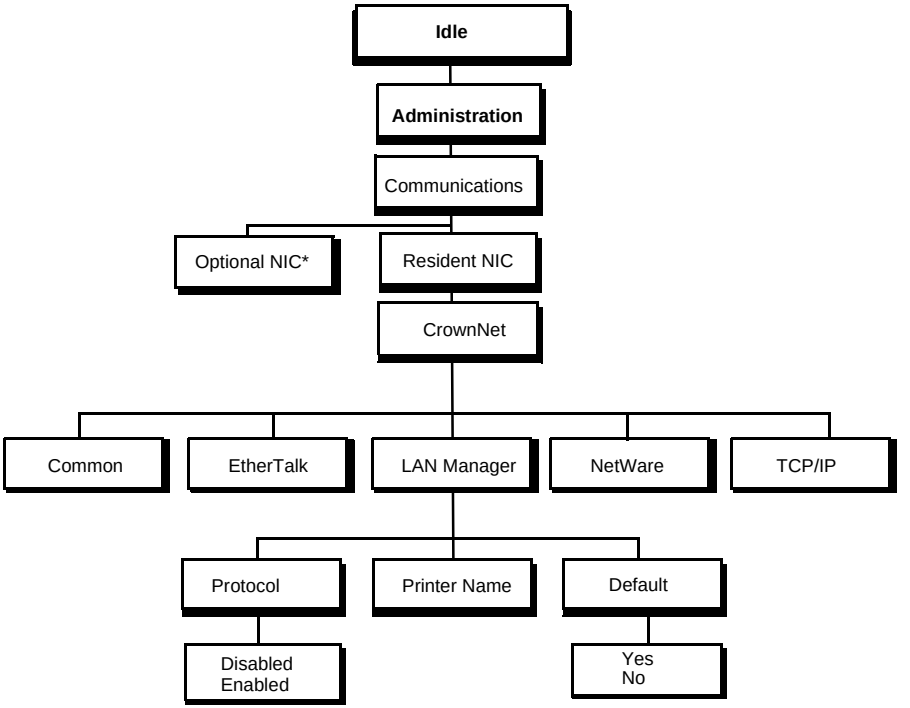
LAN Manager Menu



**Optional*

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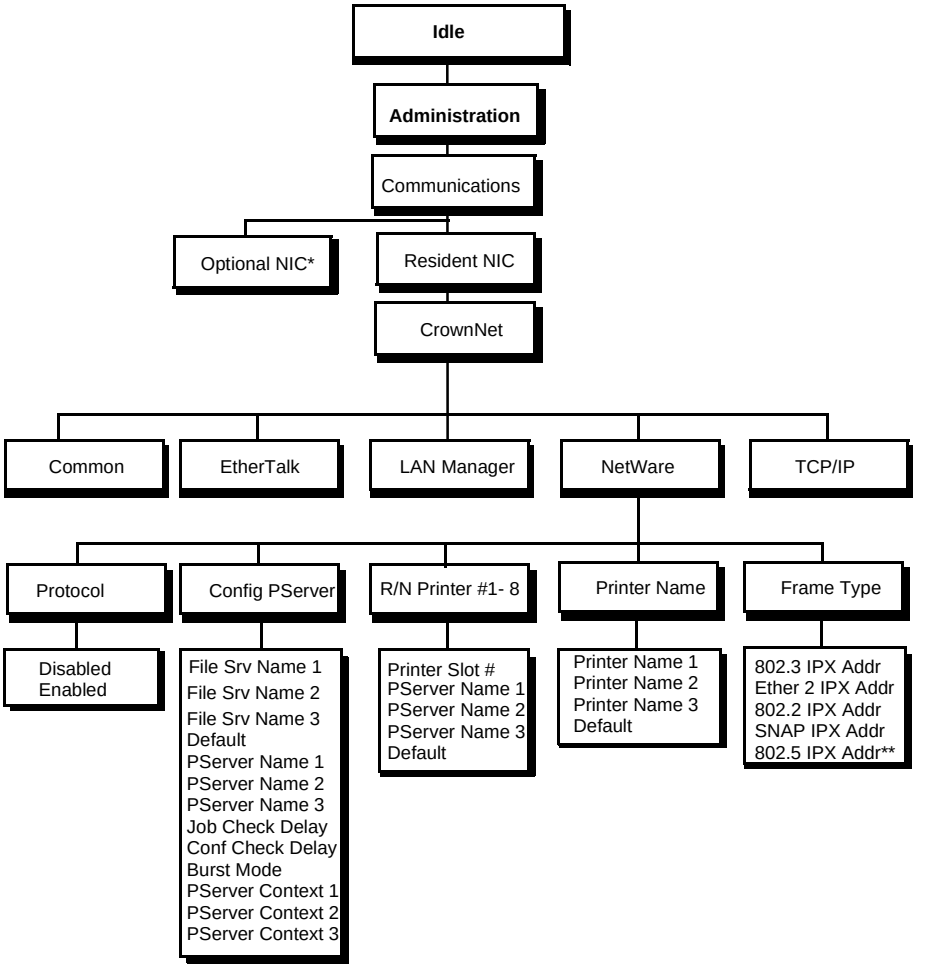
NetWare Menu



***Optional Token-Ring*

**Optional*

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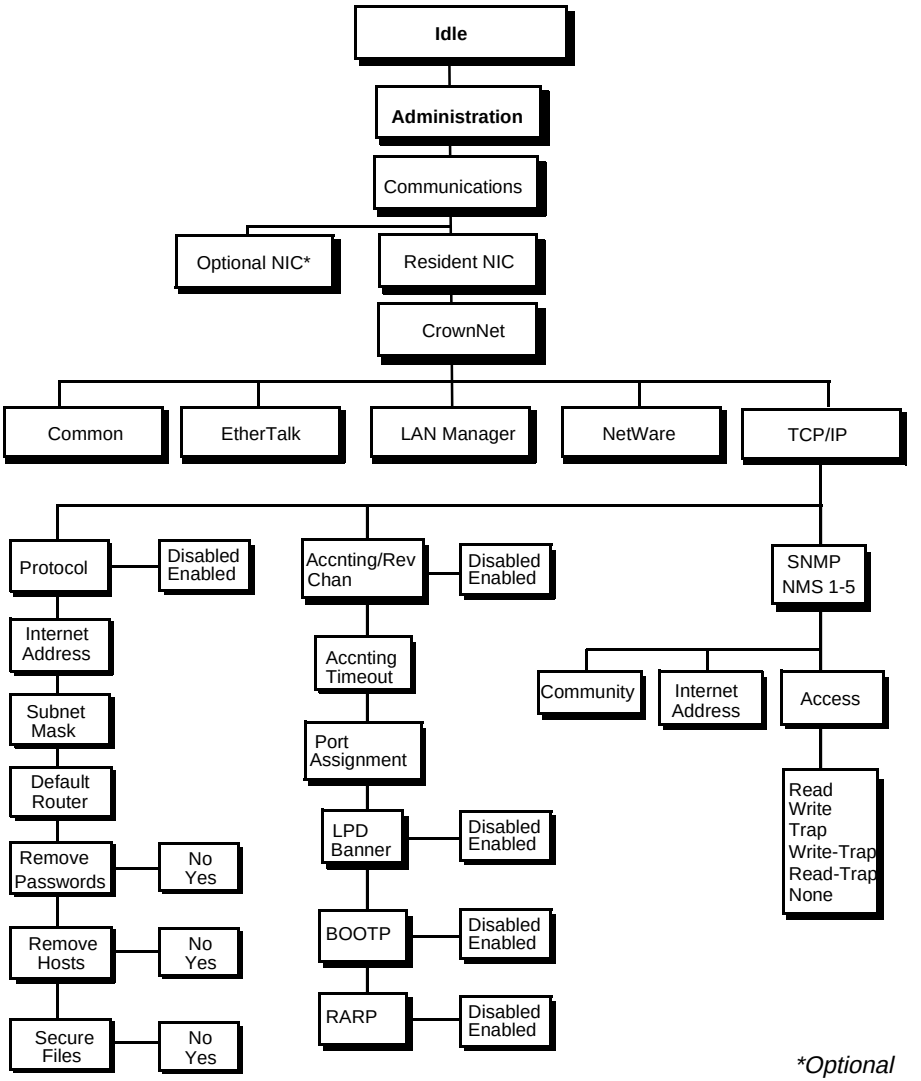
TCP/IP Menu



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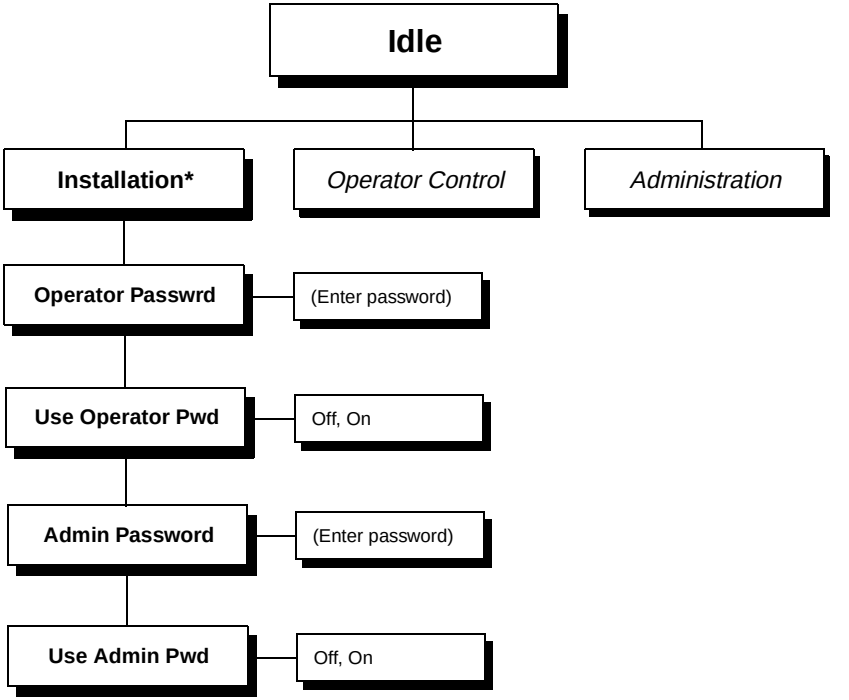
Installation Menu



❖ **Optional*

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A

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